AMERICAN
JOURNAL OF SURGERY

VOL. XXII. SEPTEMBER, 1908. No. 9

FLAT-FOOT.*

ROLAND O. MEISENBACH, M.D.,
Clinical Instructor in Orthopedic Surgery, University of Buffalo,
BUFFALO, N. Y.

Before considering the subject of this paper, I wish to call your attention to the great amount of work that is brought to bear upon the human foot in the general wear and tear of every-day life, under all circumstances and conditions. We may safely say that the foot is the hardest worked member of the body—it is the weight-bearing member. With this in mind we can readily understand the many adverse conditions under which the foot has to do its work. Considering the mechanism of the foot and ankle-joint, it may well be said that at its best the foot was never originally intended to be used as we use it, much less subjected to the conditions imposed upon it by a civilized shoe-wearing people.

The scope of this paper is to consider flat-foot only. I shall not include the many other deformities of the foot which occur, whether as the result of disease or static errors. The text of this paper is based upon upward of a thousand cases of flat-foot which have come under my care while serving in public practice under Drs. Goldthwait, Painter and Lovett, of Boston, and in my clinic and private practice, since in Buffalo. The illustrations shown are chiefly taken from my private practice. For the sake of brevity I have purposely omitted many of the details which the work requires and have tried as far as possible to treat the subject generally.

Flat-foot is a definite condition in which the normal archings of the foot are involved and the normal relations of the astragaloid and tarsal joints have changed to a greater or less degree.

The mechanism of the foot and ankle-joint is more intricate than is generally supposed, and upon the proper function of this depends much of the welfare of the other joints; that is, the knee, hip and spine. Considering the entire skeleton one can readily understand that a lowered internal malleolus or a twist of the tibia and fibula may throw out the entire alignment of the numerous joints composing it. Now, let us consider the individual joints, such as the knee, and it is at once apparent that this joint, likewise the hip, pelvic and spinal

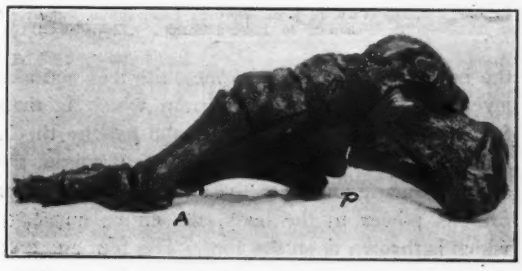


Fig. 1. Shows Normal Arches of Foot. A, Anterior Arch. P, Posterior Arch. T, Tubercle of Scaphoid, the Highest Point of the Posterior Arch. (From a photograph of author's specimen.)

joints, will not admit of much disarrangement without giving vent to subjective symptoms. The anatomy of the foot and ankle-joint shows us that the whole weight of the body falls upon the astragalus and the os calcis, which are balanced upon each

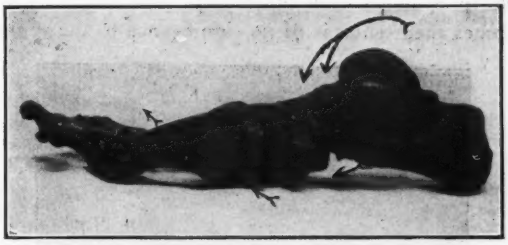


Fig. 2. Shows Arches in Flat Foot. Same as Fig. 1, with Superimposed Weight—Showing Rotation and Tilt of Astragalus with Drop and Rotation of Tubercle of Scaphoid; also Compaction at Tarsal Joints. Arrows Show Direction of Position Assumed by Foot After the Soft Parts Have Yielded.

other, then is deflected to the tarsal and metatarsal joints. All of these are held in place by the numerous ligaments, tendons and fasciae which act as stays to the bony structures that balance the superimposed body weight, be it great or small. The inertia of the body weight is practically checked at

* Read before the Buffalo Academy of Medicine, March, 1908.

Fig. 3. Posterior View of Foot, Showing Ligamentous Support and Its Weakness to Inward Strain. (Fick.)

the heads of the metarsal bones, the toes acting as levers to sustain the equilibrium which is maintained and more completely established by the leg muscles, which, with their long distant origin, turn at rather acute angles at the ankle, thus giving enormous power to the body, the entire burden of which is thrown upon the foot. The foot and ankle structures act harmoniously, so that if any one of them becomes disabled the others are bound to suffer.

Anatomically the plantar surface of the foot is divided into several arches, but practically and for functional consideration there are but two, the posterior or longitudinal arch and the anterior or transverse arch. The height of these arches differs materially in different individuals and varies at different times in the same individual. The height of the arches themselves is of no significance to the symptoms or to the usefulness of the foot except when it varies in the same individual.

Fig. 5. Acute Flat Foot Following General Debility in a Young Woman. High Arches Are Present. (Photograph from cast.)

The different types of flat-foot which I shall consider are the congenital and the acquired or static. The former is by far the rarer of the two and when occurring in the adult usually requires radical procedure for a cure, although temporary relief may be received by the conservative treatment.

Etiology.—In the congenital type we may have the mal-position of the fetus in utero, as for instance the locking of the feet, fibrous bands of the decidua vera and chorion, or by actual pressure, such as the lack of amniotic fluid in dry labor.

In the acquired or static flat-foot standing for a long time in the abducted position, excessive superimposed body weight, faulty shoes, lack of exercise, excessive exercise, faulty muscular action, rapid growth, inequality of muscular action, paralysis of certain muscles, disease, general debility, trauma

Fig. 4. A, Primitive Foot, Showing Toes Well Developed. B, Same Foot After Having Worn Shoes for Three Months. (Hoffman.)

Fig. 6. Acute Flat Foot With Muscular Spasms and Clawed Toes. Crosses Show Peroneal and Interossei Spasms. Atrophy of Muscles Above Ankle Due to Guarded Walking on Account of Pain.

Fig. 7. Chronic Static Flat Foot With Low Tubercle of Scaphoid and Rigid Medio-Tarsal Joint. Severe Symptoms. Foot Presents a Clumsy Appearance. Dot Shows Position of Tubercle of Scaphoid. (Photograph from cast.)

Fig. 9. Congenital Flat Foot in Girl, Twelve Years Old. No Local Symptoms.

and primary faulty attitude, destroying the alignment of the ankle, knee, hip or spine, may all be causative factors in flat-foot.

Among the common examples of standing for a long time in the abducted position is the motorman, who invariably has an acquired flat-foot, and the bank clerk, who stands on a hard, unyielding floor. Standing with the feet abducted is the position of weakness. This position rests the muscles and is often assumed by people who stand for a long time and by fleshy people who habitually rest the leg muscles. The position of strength is with the feet adducted and was the typical position of the American Indian in making his stealthy raids. In abduction the muscles of the leg are relaxed and do not tend toward any support of the foot, while on the other hand in adduction, the muscles are held tense and uphold the foot. The tense muscles support the bony arches of the tarsal bones and thereby do not permit the anterior portion of the foot to abduct at the mediotarsal joint. The posterior arch is held at its maximum height in this position because the posterior group of muscles of the leg are placed on a stretch. In abduction the inner border of the foot is lengthened and the body weight falls upon the internal lateral ligaments of the ankle and the astraglio-scaphoid, which soon yields under the pressure.

To repeat, the body weight being equal, the position of strength is adduction and produces less flat-foot because the arch of the foot is upheld by the bony structures, the tense muscular action and the unstretched ligaments. The position of weakness is abduction and produces flat-foot more readily because in this position the entire body weight falls upon the ligamentous structures which soon become weak and over-stretched, the muscles having been relaxed and the os calcis and astragalus rotating so as to offer little or no support.

In the laboring class who toil with tireless endurance and where body weight is often augmented by the heavy burden carried, such as bricklayers, stonemasons, expressmen, the combination of additional superimposed weight and ligamentous relaxation go hand in hand and often have direct bearing upon a beginning flat-foot; also, individuals who

Fig. 8. Chronic Static Flat Foot. No Symptoms in Feet. Joint Strain of Knees Present: Latter Relieved by Operation on Left Knee and Correction of Feet. (Photograph of cast.)

Fig. 10. Chronic Flat Foot, Showing Low Posterior and Anterior Arches with Atrophy of Leg Muscles.

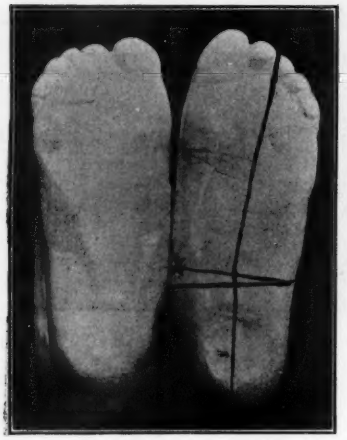


Fig. 11. Photograph of Casts, Showing Abduction of Foot at Medio-Tarsal Joint.

Fig. 12. Chronic Flat Foot with Low Scaphoid and Abduction of Foot at Medio-Tarsal Joint.

Fig. 13. Posterior View of Acute Flat Foot, Showing Tilt of the Os Calcis with Strain on the Internal Lateral Ligaments of the Ankle.

are socially very active or whose calling requires them to be constantly upon their feet are apt to encounter foot symptoms. These people in resting their feet may assume a faulty position, thereby favoring structural changes in the feet.

The uncivilized non-shoe-wearing people have a foot which has all the muscles well developed, especially the interrossei and flexors. According to Hoffman, who has made a study of the different tribes of non-shoe-wearing people, the arches in the feet vary considerably. The primitive foot represents an adducted anterior foot with the toes well developed and far apart. Among these tribes the feet serve in climbing trees and doing the work of the hands, such as holding objects. It has been noted by Hoffman that as soon as shoes are worn by these people the result is a weakening of the foot. At a glance the weakening effect of the shoe upon the foot is obvious—the normal acting muscles are restricted and, in consequence, atrophy soon takes place. The shape of modern shoes is also greatly at fault. The feet are crowded into a space which is insufficient for muscular action. The pressure at the sole with the counter pressure on the dorsum of the foot tend to weaken the plantar fasciae as well as the dependent parts of the tarsal supports. The high boot, which is tightly laced around the ankle, weakens the ankle muscles and as a result constricts their motion. This may be noted on feet after the boots have just been removed, the feet showing a marked area of atrophied muscles about the ankle-joint, with hypertrophy above the boot line; from which it is evident that the points of insertion of the muscles have been changed to a point corresponding to the upper border of the boot instead of their normal attachment. When heavy, thick-soled boots are worn the conditions are emphasized and the foot acts as a heavy encumbrance instead of a light springy mechanism. With boots of this kind the weak abducted position is likely to be assumed by the wearer in walking, which predisposes toward flat-foot.

The high-heeled boot, besides causing a strain in the small of the back, tends to throw the body weight upon the heads of the metatarsal bones, and breaks the anterior and posterior arches by causing counter pressure upon the dorsum of the foot. Calluses of the toes are frequently found in people who wear the high-heeled shoes. The continual wearing of opera shoes, with their extreme high heels, is bound to overstretch the parts designed to uphold the bony structures of the foot. It is invariably noted in people who wear the extremely high-heeled shoe for a walking shoe that the feet present weak or flat feet when the shoe is removed.

Lack of exercise and faulty muscular action are common causes of flat-foot. This may be proved from the fact that flat-foot is so often seen in stout persons whose musculature is flabby and who exercise but little as a rule.

Excessive exercise may tire the muscles so that their tone is reduced and the entire body weight thrown upon the ligamentous structures, thereby inducing an acute flat-foot. People who assume the abducted position of the feet while walking or standing favor faulty muscular action and invite an early flat-foot.

At the age when growth is most rapid flat-foot develops. Statistics show that flat-foot most frequently develops in the second year and between the

Fig. 14. Chronic Flat Foot of the Anterior and Posterior Arches Due to Passive Congestion.

fourteenth and sixteenth years. At this period the individual is spending his strength in a diffuse development of tissue and the ligamentous structures are apt to be deprived of tone. In girls, at the age of puberty, the calf muscles are often found to be small, and weak feet with prominent ankles are commonly seen. At this age the osseous structures are draining heavily and the soft parts are liable to suffer. This fact is well recognized in the cases which develop knock-knee and spinal curvature.

The inequality of muscular action plays an important part in the development of flat-foot. As has been stated before, the functions of the ankle-joint and foot depend upon the proper balance of the muscles. Anything which causes a weakening of certain groups of muscles will tend to destroy the balance and throw more weight upon the corresponding muscles and ligaments; subjected to this strain, they naturally yield after a long or short time. Habitual assumption of the abducted position soon weakens the posterior tibial and flexor muscles. Inequality of muscular action may also be induced by paralysis of certain groups as is frequently seen

Fig. 16. Acute Flat Foot. Arrow Shows Breaking of Longitudinal Arch.

in the paralytic flat-foot and also in the paralytic club-foot. In the contraction of the muscles about the ankle-joint the same result is noted. Whether this contraction is due to a functional or organic nervous disease is immaterial so far as the resulting condition of the foot is concerned; however, orthopedic treatment differs for the two. In the former, flat-foot often develops on account of the tensity of the peroneal group of muscles which contract. This has a direct effect upon the opposing muscles which soon become weakened. Under the organic nervous diseases, spastic paralysis may be mentioned where certain muscles are in a spastic state of contraction and soon weaken the muscular balance. In the latter the tendo achillis is usually contracted, causing the foot to assume the talipes-equinus position. In locomotor ataxia we almost always encounter flat-foot, due to the relaxed condition of all the structures of the foot together with the mode of walking.

Disease may produce flat-foot, but when encoun-

Fig. 15. Extreme High Heels, Causing the Entire Body Weight to Fall Upon the Anterior Arch. Pressure of Heel Borne on Anterior Portion of Os Calcis, the Posterior Part Having No Support. Undue Pressure is Also Brought to Bear on Plantar Fascia. Arrows Show Direction of Body Weight.

Fig. 17. Traumatic Flat Foot (Old Fracture of Neck of Astragalus). Local Pressure Symptoms Severe in This Case. Posterior Arch Entirely Obliterated.

Fig. 18. Position of Feet Frequently Assumed by Children with a Beginning Flat Foot. Illustration of Author's Case Showing Transverse Flat Foot with Weak Ankles.

tered is usually found to be a secondary cause. Only a few days ago a patient was sent to me who walked with a left flat-foot, due to a slow process (tubercular arthritis) of the scaphoid. This case had phthisis also. The condition in the foot was entirely overlooked by the physician until painful subjective symptoms appeared. The clinical picture of the case superficially simulated a static flat-foot with muscular spasms, but the X-ray showed clearly a beginning necrosis of the tarsal joints.

General debility, after pneumonia, typhoid, influenza, phthisis, malaria, rickets or other causes may develop flat-foot, due to the lowered tone of the structures.

Trauma is a frequent cause of flat-foot, although it may not be noted at the time of the accident—but

Fig. 19. Anterior Flat Foot. A, Line Drawn Across Transverse Arch, Which is Low. C, Hard Callus Due to Pressure of Low Anterior Arch. B, Posterior Arch High. Claw-shaped Toes and Hallux Valgus Present. (Photograph of cast.)

at some future time may give rise to symptoms; as, for instance, an old fracture of the neck of the astragalus may easily be mistaken for a congenital flat-foot with a low tuberosity of the scaphoid. In this case, as soon as the neck of the astragalus fractures, the soft parts yield, allowing the os calcis to drop with little or no rotation of the astragalus, the foot assuming a position of pes-planus. Sudden rupture of ligaments and periosteum may cause flat-foot. This is sometimes found in obstinate sprains of the ankle or in periodic turning of the ankle.

Destruction of the alignment of the ankle, knee or hip may predispose toward flat-foot and, unless the deformity is corrected before the changes in the foot have taken place, a flat-foot will result. This is noted in deformities of rickets, osteo-malacia, osteo genesis imperfecta, and in faulty attitude due to knock-knees, bow-legs, coxa vera, old Pott's fracture, and the like. In the infant a lower bow-leg of the tibia is often said to be normal and will disappear as the child grows old, a fact which is true enough, but the leg straightens at the expense of the foot. One of the strongest proofs of this is the statistics of flat-foot, which show that most cases of flat-foot develop at the age of two years.

Static flat-foot in the earlier stages shows no structural changes in the bones of the foot. At this time there exists only a general alteration of their relation due to the yielding of the soft parts. If the condition is allowed to continue structural changes soon follow. It may be said that a flat-foot, in developing, passes through three pathological stages; namely, first, yielding of the soft parts with consequent change of axes of the bones; second, alteration in ligaments and muscles; third, alterations of the bones and articulations.

In the first stage the astragalus moves forward, at the same time rotating inward with its head and neck dropping downward, causing a compaction at the astragalo-tibial joint. The os calcis tilts inward on its horizontal axis, thus destroying the utility of the sustentaculum tali on the inner side, and raising the outer border of the calcaneum off the ground. The os calcis also rotates with a drop at its anterior end. The scaphoid, the tuberosity of which is the highest point of the longitudinal arch, is forced outward and rotates so that its tuberosity drops down. In some cases the scaphoid may be forced upward instead of outward. The cuboid, cuneiform and metatarsal bones all rotate. The impaction of the astragalus, os calcis and scaphoid causes the anterior portion of the foot to abduct at the medio-tarsal joint.

The ligaments in flat-foot are at first relaxed. Later an actual stretching of some and contraction of others takes place, thereby favoring an increased distortion of the bones. The ligaments soon become thick and if the foot is overworked a periostitis may be induced. The internal lateral astragalo-scaphoid and the calcaneo-astragaloid ligaments are the first to be affected, the others following.

The muscles of the leg and foot in early flat-foot are usually found to be tense or in an intermittent spastic state. In the later stages some may be extremely flabby, while others may be in a state of permanent contraction. In the early stage the calf muscles, the peronei, flexors of the foot and the interossei are tense, while in the chronic stage the calf muscles become flabby and the peronei tense and prominent, due to permanent contraction. The interossei soon atrophy.

Symptoms.—In the early stage of a beginning flat-foot the subjective symptoms are more general; the attention of the patient and physician may not be called to the feet until later. The symptoms may take the form of a peripheral neuritis, especially noted in individuals who are nervous or who have recently passed the crisis of a general debilitating diathesis. In these patients, a general tired feeling after exertion is frequently noted, likewise a sallow anemic condition of the skin. Upon questioning closely, it may be found that a gastric or menstrual disturbance has existed which has not yielded to the ordinary treatment. Also after pregnancy the feet may not regain their tone. An intermittent swelling of the feet and ankles after being on them for a few hours or a perspiration of the feet may be the only feet symptoms noted in the earlier stages and often give the physician a clue to a beginning flat-foot. As has been said before, general debility may produce weak feet, which rapidly develop into flat-foot. These patients complain of a general tired feeling and present drooping shoulders with weakness of the entire shoulder girdle and back. There is no actual pain in any one spot, but a general ache is complained of. Upon examination of the feet the surface temperature is usually sub-normal and a passive congestion noted. In the weight-bearing position the ankles are seen to be prominent on the inner side and the arches high. The prominence of the ankles will disappear when the feet are examined in the non-weight-bearing position. The feet are flexible.

In the acute stage of flat-foot there are definite subjective and objective symptoms present. The patient may complain of cramps in the calves of the

Fig. 20. Chronic Flat Foot Following General Debility with Characteristic Flabby Leg Muscles.

legs, sharp stinging pains in the ankle, pains in the heel, across the ball of the foot, or in the dorsum of the foot, "as if a tight cord were drawn about the foot." These patients usually have tried various makes of shoes, finding that the feet are cramped in each successive larger pair. They are often nervous and irritable from the constant pain which the slightest exertion causes in the feet. The examination of the foot and leg shows a tense and hard calf muscle, with dorsi flexion of the foot limited. The toes are contracted and show calluses. There may be areas of tenderness over the scaphoid, due to a periostitis caused by the tug of the ligaments. The ankle-joint is puffy and may contain excess of fluid. In the weight-bearing position the arches are lower than normal, the ankles prominent with a twist at the tibial joint, and the outer border of the foot turned upward. There is a spread out appearace of the anterior part of the fore foot with a tendency toward abduction at the medio-tarsal joint. Upon examination from the posterior view it is evident that a pronation exists and that the body weight, instead of falling in the center of the heel, falls toward the inner side of the median line. The arches may appear high.

Fig. 21. Paralytic Flat Foot in an Infant with Talipes Calcaneus.

Fig. 22. Flat Foot Due to Faulty Attitude Following Rickets.

In the chronic stage it is much different. Here actual structural changes have taken place. Owing to the fact that the symptoms may be in joints far remote from the feet or affecting the feet and other joints simultaneously, the case may be mistaken for one of the so-called chronic rheumatism or gouty affections. In the chronic stage, likewise, the feet have usually ceased giving forth subjective symptoms, having passed through the acute stage some months or years ago. The past history of the patient generally brings out this fact.

Petty aches noted in the knees, hips, and small of the back, may be due to a chronic foot error of long standing. Other chronic joint conditions may be present at the same time, as, for instance, an osteo-arthritis by the flat-foot and a continued irritation of the affected joint kept up. By correction of the foot error the joint strain is removed, which may have a direct bearing upon the prognosis of the other affliction.

In the chronic stages also the feet have accommodated themselves at the expense of the knees or hips; walking upstairs, getting on and off a car, walking on an icy pavement, or any activity which tends to tax all the joints to their utmost may cause pains which are primarily due to flat-foot. These pains are commonly noted in the knees, hips or spine. The compaction of the articulations of the foot often induces direct or indirect pressure upon the nerves which causes sharp referred pains in the limb. These may be differentiated from sciatic pains by the fact that the former radiate upward while the latter radiate in an opposite direction.

Upon examination of a typical flat-foot in the chronic stage it will be found that the arches are low and that the foot presents an appearance of clumsiness rather than lightness. The body weight may or may not fall upon the normal weight-bearing line. The patient naturally assumes an abducted position and a thick or prominent ankle with considerable thickening over the region of the tubercle of the scaphoid exists. Upon palpation the scaphoid will be noted to be really low. One may also note a distinct abduction of the fore foot at the medio-tarsal joint, which is at first evident from the strained position that the ankle assumes when the patient stands. Calluses are common, being most frequently noted under the anterior arch and on the toes. If complicated by hallux valgus, a hard callus usually exists on the outer distal end of the great toe. These patients often wear down the heels of their shoes very unevenly.

The treatment of flat-foot consists essentially in restoring the foot to its normal position. After this is secured, the retention of the position gained is as important as the restoration of the foot.

The procedures necessary for a restoration are the operative and the non-operative, the former being seldom necessary in flat-foot except in cases of the congenital type, which give painful local symptoms. In this type the low scaphoid usually causes a local painful area, so that any pressure upon the foot causes an unbearable pain. In order to restore the foot to the normal the scaphoid, which has usually undergone a mal-formation, one might say a hypertrophy, must necessarily be removed before the foot can be adducted and the arch raised. For the excision of the scaphoid several operations are in vogue, some of which seldom bring about the desired results, such as Ogston's operation. The Trendelenburg operation of supra-malleolar osteotomy is an excellent procedure when used for the correction of a valgus following an old Pott's fracture. Strictly speaking, the operation most successfully used for the correction of a flat-foot is the cuneiform exsection, or the extirpation of the en-

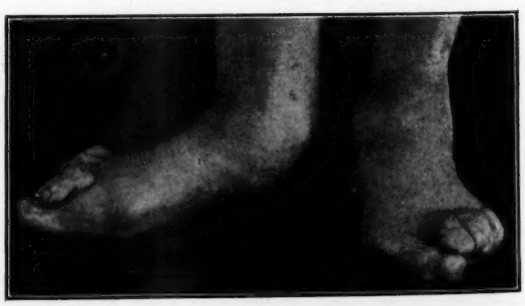


Fig. 23. Anterior Flat Foot with High Posterior Arch. Case Complicated by Rheumatoid Arthritis. Ankles Admit no Lateral Motion.

tire bone, whence the foot is brought into adduction and the approximated ends of the tarsal bones held in place with bronze wire, or lashed together with kangaroo tendon. An additional tenotomy or fasciotomy may be necessary.

The Non-Operative Treatment.—Under this treatment come the majority of flat-foot cases. In the earlier stage Thomas heels applied to the shoes may suffice to correct the mal-position or pads worn on the inside of the shoes, together with the Thomas heels, may be necessary.

In flexible feet in the acute stage properly fitting plates cut by the orthopedic surgeon, according to the symptoms, will offer relief. In feet somewhat rigid or held by muscular spasm pads must be applied, which gradually bring the feet into position. When the feet have been brought to their proper position plates are to be worn for a long or short time, as the case may require.

In some cases it may be necessary to treat the static errors before beginning treatment of the existing flat-foot. This is the case in weak pronated feet with a low anterior arch or in cases with claw-shaped toes, accompanied by muscular spasms.

Chronic Stage.—In the chronic stage with flexible feet, plates should be worn; these must be raised from time to time as the feet return toward their normal position. In cases where there is much abduction which does not yield to ordinary plate treatment, forcible manipulation under ether must be used, and the foot held in the over-corrected position in a plaster dressing, after the removal of which the patient may be placed upon plates.

Some flat-foot cases can be placed upon plates at once, while others, in order to secure relief, must

Fig. 24. Chronic Flat Foot Following Osteo-Arthritis. Illustration Shows Joint Strain of Tibia-Astragaloid Joint with Abduction at Medio-Tarsal Joint.

Fig. 25. Photograph of Case of Chronic Static Flat Foot in Which the Posterior Arch Has "Taken Up."

be placed on pads and the foot prepared for the wearing of the plates; this is especially necessary when ligamentous contraction has taken place. In some cases complicated by affections like infectious arthritis, plates are distinctly harmful and may cause a permanent deformity.

After having restored the foot to its normal position, it is the task of the orthopedic surgeon to keep it there. This is best done by properly graduated exercises and massages of the legs, feet and toes. These, if taken systematically, will strengthen the muscles so that a normal anatomic and functional foot will result. Exercises of the feet are especially necessary in the growing child. If deformities or joint strain of other parts exist, they should be corrected, as they may have direct bearing on the foot condition. If the foot condition is due to a general debility, the latter should be treated by the ordinary methods during the period of treatment and after the foot has been corrected. The patient should be taught to walk and stand correctly and to use tonic bathing.

Shoes.—It is hardly possible to conceive that in this age of modern orthopedic surgery a shoe modeled to a deformed foot is made rather than the foot corrected to an average shoe, yet this is frequently done by makers of shoes who do much harm in this way by their entire ignorance of the foot, its anatomy and symptoms.

The cardinal feature in a shoe best suited to ordinary wear should be a straight inner border on a moderately high last, the sole should not be too thick and the toes should have enough space for action. The leather should be light and flexible. The heel should come forward slightly more on the inner than on the outer side and should be of aver-

age height. The inside of the shoe should be concave at its heel.

In conclusion, it may be said that the important factor for the rational treatment of flat-foot is the correct diagnosis of the foot conditions as well as of the complications which may be present in the other joints. A correct diagnosis of the foot error can only be made by the complete study of each case. Imprints of the feet taken upon paper are of no value from a diagnostic standpoint and are often misleading. The general joint diagnosis has a direct bearing upon the treatment of the foot. Many of the so-called cases of rheumatism are really static foot errors. The so-called rheumatic diseases in children with symptoms of "growing

Fig. 26. Infectious Arthritis with Secondary Flat Foot. Process Has Involved All the Joints of the Body. X-Ray Shows Necrosis of the Os Calcis.

pains" are often, in reality, foot errors. In the acute cases the many diffuse pains sometimes called neuritis, but which have not been helped by its treatment, are often due to joint strain. In these patients it is a noticeable fact that much of their nervousness disappears after they are made to walk correctly. In the cases with actual chronic joint lesions much irritation can be removed by correction of the feet.

The treatment of the foot should be given with the view of removing the cause rather than the treatment of symptoms. In other words, a permanent cure should be aimed at with the thought of the future usefulness of the feet.

140 ALLEN STREET.

LOCAL ANESTHESIA FOR GASTROSTOMY.

Gastrostomy for esophageal stenosis if performed under ether or chloroform is nearly always followed by an aspiration pneumonia, frequently fatal. With local anesthesia the operation is safe.—HOWARD LILIENTHAL, in *Medical Record.*

A REPORT OF A CASE OF BRAIN ABSCESS ASSOCIATED WITH CHRONIC PURULENT OTITIS MEDIA, WITH SPECIAL REFERENCE TO THE OPERATIVE TECHNIC FOLLOWED.

JOHN RANDOLPH PAGE, M.D.,

Assistant Attending Aural Surgeon to the Manhattan Eye, Ear and Throat Hospital and Babies' Hospital,

NEW YORK.

The following technic was successfully followed by me in an operation for brain abscess while at the New York Eye and Ear Infirmary in February, 1904. Dr. Fred Whiting whose service the patient was in, very kindly assisted me and suggested the steps of the operation. The technic of different men at that time was so varied and the mortality following operation so appalling, that I think it worth while to describe the method followed in this case which resulted successfully, the patient being still alive without any apparent disturbance of her brain function.

The operation was on a child six years old, of Russian Jewish parentage. Her father declared that she had been free from any serious illness and had always been particularly bright and active until two weeks before she was brought to the hospital. The only history of disease obtained was that her right ear had discharged off and on for four years. Two weeks before her admission to the hospital she began to complain of headache, became fretful, but part of the time seemed bright and cheerful. Suddenly in the middle of the day, eight days before her admission, she vomited, had a convulsion and was unconscious for fifteen minutes, according to the statement of the doctor who was then called in. He treated her under the impression that her condition was probably due to some intestinal disturbance but later brought her to the hospital himself, thinking there was possibly some brain complication associated with her purulent ear.

She held her head to the affected side, kept her hand pressed to that side of her forehead and cried out when disturbed, but seemed drowsy when left alone. I examined her eyes but could find no evidence of optic neuritis and little, if any, difference in the two eye grounds. Twenty-four hours later, however, there was a distinct difference in the two fundi, the veins in the right being more swollen and tortuous than in the left and the edges of the disc more blurred. Tests made of her equilibrium were unsatisfactory because of her fretfulness when disturbed.

On admission her temperature was 100.6°, pulse 120 and respiration 26. Three hours later they were 99°, 84 and 26, respectively. Under chloroform anesthesia an incision was made behind the ear from

the tip of the mastoid to a point one-quarter of an inch above the attachment of the auricle, then forward an inch and a half toward the outer angle of the orbit and then vertically upward for an inch or more. A horizontal posterior incision was made backward over the mastoid at the level of the meatus, and when the integument and periosteum were reflected a good exposure of the mastoid and squamous portions of the bone was obtained. An opening into the cranium was made with a gouge large enough to admit of using a rongeur and with this instrument the tegmen antri and tympani were removed. They were found softened by necrosis but no perforation was discovered. The antrum and middle ear were filled with necrotic material and foul pus. After the removal of the tegmen antri, the bone covering the outer aspect of the temporosphenoidal lobe was removed, upward for a little over an inch, forward for an inch and backward for about three-quarters of an inch. Neither granulations nor lymph were found on the dura nor was any tract of infection discovered through it. Its tension was, however, plus one or over. Considering that the infection was most probably through the roof of the antrum or tympanum, a narrow straight bistoury was introduced into the brain, upward just above the tympanum and then over the antrum, but with a negative result. Three rows of punctures were then made about one-third of an inch above each other, there being three or four punctures in each row. Some were directed inward, some forward and inward, and some backward, but no pus was found. Then, influenced by the patient's intense frontal headache, more bone was removed anteriorly for one-quarter of an inch or more, and the same systematic exploration was made (three more punctures), but still no pus was found. Bone was then removed in the same way posteriorly and after two unsuccessful punctures, the bistoury was introduced almost straight in, just above the angle made by the entrance of the petrosal into the lateral sinus, and this time, on slowly removing it, we were rewarded with a flow of pus alongside the knife. A half-inch crucial incision was then made in the dura at this point and a discharge of pus followed. Not having an encephaloscope, a large sized Gruber ear speculum with a gauze obturator was carefully introduced just within the incision, the obturator was removed, and the pus that appeared in the speculum was wiped out with absorbent cotton. The obturator of gauze was replaced and the speculum gently introduced a little further. When the obturator was removed more pus appeared in the speculum and this was absorbed and removed as before. This procedure was followed carefully and gently, the pus being absorbed with numerous wipes of cotton on applicators. After the escape of pus the walls of the abscess seemed to lie in apposition, but when the speculum was introduced farther they would part and a little more pus would appear in the speculum. There was no evidence of a fibrous wall to the abscess. The end of it could not be seen definitely because of the shortness of the speculum, but as no more pus appeared a small wick of gauze was carried in as far as could be seen, and left there. The opening in the dura was held open with gauze packing and a dressing of loose gauze was applied after the anterior part of the wound had been sutured. In this case the antrum and tympanum were hurriedly cleaned out and the patient returned to bed. At least a half-ounce of pus escaped from the abscess, and the specimen examined by Dr. Dixon showed a mixed infection with numerous streptococci. Cultivation showed streptococcus.

The dressing was changed twice a day for the first four days, but as the abscess seemed to drain well the wick was not changed until the second day, when it was carefully removed and replaced with the aid of an encephaloscope. The drain was gradually shortened and changed every day, but not removed entirely until three weeks after the operation.

A small hernia about the size of a hazel nut followed the operation, but at the end of four weeks it was completely closed off and the whole area presented a uniformly granulating surface.

The points of value in this technic are, I consider, (1) the method employed for systematic exploration by means of multiple small incisions in the dura with a narrow bistoury instead of making a large dural flap, thereby inviting a chance for an uncontrollable hernia; (2), the fact that the soft brain tissue was treated with the utmost respect and consideration, and neither probes nor fingers were introduced into it for fear of spreading the infection; and (3) that with a speculum or encephaloscope the direction of the abscess can be discovered, and that these instruments can be introduced slowly and gently, the obturator being removed frequently and the pus wiped away, without increasing the intra-cranial pressure or fear of rupturing the abscess into a ventricle.

Mr. Ballance, in his recently published book, "Some Points in the Surgery of the Brain," says: "If the site of the abscess is not obvious it must be sought for by exploratory puncture, and in so doing it should be remembered that the site of the abscess is almost certainly close to the bone disease which gives rise to it." He emphasizes the importance of careful inspection of the dura in order, if possible, to locate the "stalk" of the abscess, that is, its path of infection through the dura and cortex, so that the puncture may be made along this tract walled off by adhesions from the subdural spaces. He also says that when symptoms point to cerebellar abscess, the operator should work his way from the inner or posterior wall of the antrum to the posterior surface of the petrous portion, as the point of attachment of the abscess to the dura is over the sinus groove, over the aqueductus vestibuli, or over the internal auditory meatus. In this case no stalk was seen, and as the symptoms pointed to the temperosphenoidal lobe, the first two punctures were made from below upward directly over the tympanum and

antrum, but no pus was found; and fifteen more punctures were made in concentric lines from this point before the abscess was located. Mr. Ballance says, "If careful exploratory punctures with the knife fail to find the abscess, the finger inserted into the brain substance will almost infallibly detect the presence of a tense, abnormal swelling, and however deep the abscess is it may be safely opened by the knife guarded by the finger." I frankly state that I believe if I had stopped after ten or twelve punctures, which many would have considered a thorough enough exploration, and followed the method of locating it with my finger, the patient would never have recovered. During my service at the New York Eye and Ear Infirmary every case I saw in which the finger was introduced into the brain died. One case, in a man forty years old, is particularly interesting because he was under my observation from the beginning of his infection until his death. He was operated on for acute mastoiditis and his dura over the antrum was accidentally perforated with a small curette at the time of operation. About two months later he was operated on for tempero-sphenoidal abscess. The path of infection was easily seen and the abscess was evacuated through it. Not content, however, with the simple evacuation and drainage of the abscess, the operator probed the cavity afterwards. The patient's symptoms were greatly relieved, but after a short time they reappeared and he was operated on a second time. An incision was made along the old tract and very little pus was obtained, more probing was done, and the patient shortly died. Autopsy showed another abscess in the same lobe, which was probably due to a stab culture made by the probe. I have Mr. Ballance for authority that a second abscess in the tempero-sphenoidal lobe is rare, which is additional support that the probe was the cause of it. He also says that in cases where the urgent symptoms have been removed by drainage through the stalk, but when the drainage in this direction is not sufficient for a cure, a counter opening should be made, but before this is done, at the point desired the dura should first be incised and the opening packed with gauze until adhesions are formed, and then through this protected area the abscess can be counter-drained and the danger of diffuse encephalitis avoided. As an aid for this procedure, to determine the direction of the abscess, a small encephaloscope or a Fluhrer probe, not the ordinary small probe, should be used, with great care, through the stalk.

The problem of drainage is a difficult one, especially when the incision is through fresh tissue. The abscess should be evacuated, as far as possible, at the time of operation as described, never irrigated, and for want of something better, a small wick of folded gauze placed to the bottom of it. This should not be removed for twenty-four hours unless urgent symptoms arise, but the outside dressing should be changed, if necessary, twice a day. The drain may be loosened a little at each dressing, and when it is removed a fresh one should be replaced through an encephaloscope. Tubes and rubber tissue are more unsatisfactory to me than gauze as they are more liable to cause injury mechanically.

Out of twenty-four consecutive hospital cases, whose histories I have seen, that were operated on by different surgeons for suspected brain abscesses, no pus was found in seventeen. Of course, many of these cases had already marked signs of meningitis and were operated on with small hope of finding any abscess; two of the seventeen recovered.

Of the seven in which pus was found, five of them had it in the temporo-sphenoidal lobe, and of this number two recovered. In the other two the pus was in the cerebellum and resulted fatally. Unfortunately in the fifteen that died, where no pus was found at the operation, autopsy was obtained on only one, and this one had meningitis and no brain abscess.

It is worth noting that of the seven abscess cases, five had temporo-sphenoidal abscess and only two cerebellar. This is unusual, as most statistics show that abscess of otitic origin is more frequent in the cerebellum than in the temporo-sphenoidal lobe.

254 MADISON AVENUE.

TUBERCULOSIS OF THE LYMPH GLANDS IN CHILDREN.

If there is any condition which is non-surgical, it is tuberculous glands. The glands which are usually removed are those which drain the mouth, nose and adjoining structures. This is done in the belief that such a procedure is removing the tuberculous focus. But it must be remembered that these visible glands are only part of the offenders. It is very rarely that the entire focus can be removed, so the only thing that is accomplished by such a procedure is to remove the ones visible, while others equally dangerous are left behind to menace the patient. Nor is this all. The statistics of operation are anything but satisfactory, for there is a local recurrence in about twenty per cent. of cases and an extension to other organs in about twenty-five per cent. The danger of operating in tuberculous tissue is well known. Vessels are opened up and the bacilli are scattered through the blood stream to infect other foci.—FRANCIS M. POTTENGER in *Pediatrics*.

REPORT OF TWO INTERESTING CASES OF MASTOIDITIS.*

J. H. CRAWFORD, M.D.

ATLANTA, GA.

From twenty-seven recent operative cases, I have selected two which are very rare and, I think, interesting. First, an acute primary mastoiditis of traumatic origin. Second, an acute mastoiditis occurring in an infant eleven months old.

Acute mastoiditis may be a primary or secondary inflammation. The great majority of cases occurring as a secondary inflammation to a previous infection and suppuration of the tympanic cavity.

Inflammation of the mastoid as a primary disease is one seldom observed and is due to infection extending into the pneumatic spaces from the nasopharynx through the blood or lymph channels or from direct infection and extension due to trauma. This condition may also occur in the course of a syphilitic disease. So we can look upon nearly every case of this disease as a complication or secondary inflammation, and rarely do we see it originate in the mastoid process itself. It has been estimated that not more than one per cent. of all the cases of this disease originate as a primary condition. A careful study of most of the cases of reported primary mastoid inflammation on record suggests the suspicion that in some of these there had been a previous middle ear inflammation as the cause of a chronic quiescent mastoid disease which was awakened to acute manifestation by violence or exposure.

The late St. John Roosa, in his treatise on diseases of the ear, doubts whether he may correctly speak of a primary periostitis of the mastoid process. He explained the cause of the apparently primary cases of mastoid diseases occurring in young children, in supposing that the pus from the tympanum found an easier escape through the mastoid than through the membrana tympani.

Of the causes of primary inflammation of the mastoid, trauma seems to be the most infrequent. While this is true, injuries of the mastoid process are not infrequent, being usually due to a fall, blow upon the mastoid, stab, or gunshot wound. The symptoms of primary acute inflammation of the mastoid are the same as in the secondary variety without the existence of the middle ear involvement. However, in my case there occurred a middle ear inflammation which manifested itself about eight days after the injury. This, of course, was due to an extension of the infection from the antrum through the aditus, and, I am sure, had it not been for this fact, the attending surgeon would not have appreciated the mastoid condition, but would have treated the mastoid as an ordinary wound.

My first case is a primary mastoiditis of traumatic origin, occurring in an adult male, age 54, occupation, superintendent of a copper mine. Mr. B's injury was first reported to be a result of a fall, striking a sharp piece of ore, which entered the integument just posterior to and below the left ear. Later it was found upon investigation that he received the injury by being struck with a piece of ore. His life had been threatened on several occasions, and the prints of his hands were noticed in the mud near where he was found in an unconscious condition—this fact proved he had fallen face forward. The specific gravity of copper ore is very high, which of course increased the disastrous effect of the blow.

About two days after the accident there developed a slight swelling, and considerable tenderness over the mastoid region with a considerable discharge from the opening made by the piece of ore. At this time it was not thought that the injury was of a serious nature, and no great attention was paid to the mastoid more than to treat the condition as an ordinary wound. Irrigation was given once or twice a day and a sterile dressing applied. Each day the tenderness and pain over the mastoid increased. In the course of a week Mr. B. complained of severe pain in the ear—earache. This lasted for two days, then rupture of the tympanic membrane occurred. When this occurred, and together with the increased pain over the mastoid region, the attending surgeon's attention was more closely called to the seriousness of the mastoid involvement, and he at once appreciated the correct condition—that of primary mastoiditis with secondary tympanic involvement.

I saw Mr. B. with Dr. Hodgkins, surgeon for the Tennessee Copper Co., about ten days after the accident. Upon inspection of the mastoid and ear, I found a jagged cut made by the piece of ore, just below the mastoid tip. The wound and ear were discharging freely;—other evidences of the condition shown were pain on pressure, and a marked degree of swelling over the mastoid region. I advised an immediate operation, making the incision and second incision of Whiting—and after separating the flaps, together with the periosteum, from the superior and posterior part of the process, I proceeded to the tip and on trying to separate the sterno-cleido-mastoid muscle from the tip, dislodged a small piece of bone which was followed by the discharge of a quantity of pus. Manipulation with a probe showed me that I was in one of the large tip cells. With the aid of Rogier forceps and curette I made my way upward into the antrum. At the completion of the operation, the whole mastoid tip and cellular structure of the process had been removed, making a more radical operation than usual. Since the operation Mr. B. has made an uneventful recovery.

Now we can readily see how this condition came about, that is, the mastoid inflammation as the pri-

* Read before the Georgia State Medical Association, April 17, 1908.

mary condition, the middle ear as secondary condition. Normally the cells of the mastoid process from the antrum to the tip are in communication with one another, and therefore pus in the antrum may find its way through the aditus into the middle ear. The blow on the mastoid tip was of sufficient force to break the cortex, exposing one of the large tip cells to infection. Infection took place and extended into the antrum, and from the antrum into the middle ear.

My second case is that of an acute mastoiditis occurring in an infant eleven months old, Baby G. It is a known fact that the first year of life is especially productive of serious suppurating ear disturbances, so we frequently see mastoid involvement in the very young. The two most interesting features of this case were the remarkable development of the pneumatic structure of the process, and the absence of the most usual symptoms met with in these cases. The only symptom present being the characteristic position of the auricle, it being pushed forward and downward almost at right angles to the skull. There was no discharge from the ear, and the mother stated that the child had given no evidence of being in pain. She had only noticed the bone-like appearance behind the ear. Anatomists tell us that the antrum is present at birth, while the mastoid cells are almost absent, and prior to puberty, are few in number. In the young we find that the mastoid antrum is separated from the overlying soft parts by a very thin layer of bone, and very often on making the primary incision we find pus just under the periosteum—the pus having undermined this thin layer of bone, and extravasated into the soft parts. In this case of the babe the antrum was deeply situated.

After the removal of the periosteum the cortex was found white and hard. Several superficial cells were entered and found filled with pus, before the antrum was reached. On entering the antrum a quantity of pus was evacuated, a number of cells were entered, and broken up around the antrum, making an unusually large cavity in a subject so young. This case made a rapid and uneventful recovery.

INDICATIONS FOR MASTOID OPERATION.

The indications for opening the mastoid in acute mastoiditis are: 1. Tenderness over the antrum lasting three days after freely incising Schrapnell's membrane. 2. If the discharge from the ear suddenly grows much less while other symptoms remain. 3. A flow of pus too great to have been produced by so small a cavity as the tympanum, indicating invasion of the cells. 4. Many surgeons regard a bulging of the postero-superior wall of the canal as a positive sign of mastoid disease.—W. J. LEACH in the *Journal of the American Medical Association.*

A REPORT OF THREE CASES OF LARYNGEAL GROWTH REMOVED BY DIRECT LARYNGOSCOPY.*

JOHN McCOY, M.D.,

Instructor in Rhinology and Laryngology, University and Bellevue Medical Colleges; Assistant Surgeon, Ear Department, N. Y. Eye and Ear Infirmary.

In a certain proportion of cases the removal of a laryngeal growth by the indirect method, *i. e.*, laryngeal mirror and down-curved forceps, is accomplished with comparatively little difficulty. There is, however, a proportion of cases in which this operative procedure is not only difficult of accomplishment, but is also at times dangerous to the vocal structures of the larynx. In this latter class of cases the comparatively recent method of attacking the growth directly through a straight tube has yielded me such excellent results in the way of precision and accuracy of removal, that I feel justified in reporting three such cases that have come into my practice during the past six months.

CASE I. In November, 1907, Mr. K., aged 54, was referred to me with the history that he had been hoarse for three or four months, that he had lost several pounds in weight, and that a physical examination had failed to reveal any apparent cause for this latter condition. On examination of the larynx a growth was seen projecting from the inner surface of the left cord. The growth was about half the size of a pea and was attached by a broad base to the mid-portion of the cord. It was pale pink in color as was also the mucous membrane of the cord surrounding it. The necessity of removing the growth was urged, in view of the possibility of malignancy. Three careful attempts on three different occasions, were made to remove the growth by the indirect method. The patient was so extremely nervous, however, that the minute he saw the forceps going into the mouth, his pharynx would contract and he would grasp my hand. The third attempt was a repetition of the first and second; training seemed to be of no avail. The patient himself then asked whether there were not some way in which the operation could be done while he was asleep. The direct method was suggested and to this he readily assented. He was sent to the N. Y. Eye and Ear Infirmary on November 10th. That afternoon he was given a preliminary hypodermatic injection of morphia, gr. ¼, the larynx was cocainized, and he was then placed under

* Read before the New York Academy of Medicine, Section on Laryngology and Rhinology, April 27, 1908.

chloroform anesthesia. The straight laryngeal tube was then passed into the pharynx and the epiglottis was hooked forward. The instrument used was the separable speculum of Dr. Jackson, as it possesses a leverage bar which makes it easy to bring the larynx into line and easy for the assistant to hold it there. The growth was readily seen and about half of it accurately cut away with a long straight cutting forceps. An unlooked for contingency then arose. Although the anesthetic used was chloroform, there was an excessive bronchorrhea and when this became tinged with the blood from the wound, it clouded the field of operation as well as the lamp in the tube and caused delay in removing the rest of the growth, during which the patient partially came out from the narcosis, and had to be re-anesthetized. This complication therefore interfered with the rapid progress of the operation. It was finally controlled by the hypodermatic injection of atropia, gr. 1/100. The operation was then completed by the accurate removal of the rest of the growth in another bite of the forceps. Examination of the growth showed that it was benign in character, a fibroma. The patient's voice was quite restored. He has reported to me every three months since. There has been no indication of recurrence and examination to-day reveals a slight thickening at the base of the original growth.

Case II. Mr. S., aged 20 years, on February 25th, of this year, was taken to the University-Bellevue Nose and Throat Clinic, by his physician, who gave the history that the young man had been growing increasingly hoarse for the past three months, his general health was good and he thought he had gained some in weight since his hoarseness began. The doctor and another physician had given him a thorough physical examination and could find nothing abnormal in the lungs or elsewhere. Examination of his larynx proved to be somewhat difficult, as he had a short overhanging epiglottis which almost completely hid his larynx from view. This, combined with a nervous, timid disposition, rendered a view of the larynx quite difficult. On deep inspiration, however, one could see a growth in the interarytenoid region which quite prevented an approximation of the cords. This was considered a good case for the direct method, and it was adopted at once, as it was felt that it would be a loss of time to attempt the indirect method in this timid, shrinking lad, with the anatomical obstruction above mentioned. He was placed in the N. Y. Eye and Ear Infirmary and on February 26th, he was operated upon. He was given a preliminary hypodermatic injection of morphia, gr. ¼, this time combined with atropia, gr. 1/100. His larynx was cocainized and chloroform anesthesia was induced. The straight tube was passed to the larynx and an excellent view obtained. A good-sized growth was seen in the interarytenoid region, extending from just below the cords to the upper limit of the larynx. It was pale in color and papillary in appearance. It was removed piece by piece with the straight forceps. The difficulties encountered in this case were, that the patient seemed to come out from deep anesthesia very quickly and would commence to struggle. This necessitated some delay in getting him well under again. Also, he did not seem to the writer to bear the combination of the two depressants, chloroform and cocain, very well, as evidenced by a pulse which was more rapid and weak than it should be and by an unhealthy bluish color of the skin. These symtoms, while not alarming, were not reassuring. Examination of the growth showed it to be hypertrophic tuberculosis. The young man was advised of the nature of his trouble and told also that in all probability there was a small focus of the same nature in the lung. He at once took advantage of an opportunity to go to Denver, and I think that he has at this early stage a very good prospect of complete recovery.

Case III. On March 20th, a young woman of 24 years, was referred to me with a history of hoarseness extending over two months. In all other respects her health was perfect. Examination of the larynx showed a circumscribed thickening at the base of the left arytenoid. As she was extremely apprehensive and very much averse to any instrumentation for the purpose of removing the growth, the direct method under anesthesia was suggested, to which she readily assented. She was placed in the hospital, and on March 21st, was given morphin and atropin hypodermatically, the larynx was cocainized, and she was placed under general anesthesia. In this case ether was used to complete the anesthesia. The straight tube was passed, an excellent view of the larynx obtained, and the growth removed with absolutely no inconveniences or interruptions whatever. The atropia seemed to control the secretions from the bronchi as there was no bronchorrea. The patient was at all times in perfect condition and the operation was ideal from the operator's point of view. After the removal of the growth the arytenoid cartilage seemed to be unduly large and the possibility of a chondroma was thought of. The examination of the specimen obtained showed it to be chronic inflammatory thick-

ening. The patient has been kept under observation and as her voice is quite restored, and no difficulty with the cartilage has developed, it is to be presumed that she is cured.

In conclusion, the writer would draw the following inferences:

That in a phlegmatic patient this operation could readily be done with the use of cocain only.

That in nervous, sensitive patients anesthesia is to be preferred.

That other anesthesia is to be preferred to chloform because of its greater safety and because the patient once under the anesthetic remains so a longer time, and, therefore, affords a better chance to finish the operation without interruption.

That a combination of morphin and atropin is a good preliminary injection as the atropin seems to control any tendency to excessive bronchial secretion.

157 WEST 73D STREET.

REMARKS ON THE IMPORTANCE OF EARLY SURGICAL TREATMENT OF GALL-STONE DISEASE, BASED UPON AN EXPERIENCE OF FORTY-TWO OPERATIVE CASES.

G. E. GAVIN, M.D.,

MOBILE, ALA.

Located in the right upper quadrant of the abdominal cavity there is a small space with a surface marking not larger than the palm of one's hand, that has very aptly been termed "the danger zone of the abdomen."

We can readily see why this is such an important section of the abdominal cavity, when we pause to consider that we have in this small space the pyloric end of the stomach, the duodenum, the pancreas, the gall-bladder and its ducts, each of which is often subject to serious changes; to say nothing of the symptoms-complex that always follow when the diseased process involves one or more of the other organs.

During the past five years much has been said and written regarding the surgical treatment and pathological conditions of the gall-bladder and the stomach, but the difficulty lies in the fact that the average practitioner will not take the time to witness a few of these operations and see the beneficent results of the operative procedure.

I take the position that it is of as much, if not more, importance to the general practitioner than it is to the surgeon, to attend the surgical clinics of to-day, in order that he may become more familiar with the pathology of these diseases in their earlier stages; and not wait until the cases are dead and then only see the end results. We owe a great deal to a very few scientific surgeons of to-day who, in determining the true pathological conditions in the earlier stages of these diseases, aid us materially in treating in a more rational way, both surgically and medically, many troubles, especially in the upper abdomen, that have been handled heretofore most unsatisfactorily by us all. I propose in this paper to call the attention of the general practitioner, as well as the surgeon, to some of the main symptoms of these disease processes in their different stages, and give my experience in the last series of forty-two operative cases.

The gall-bladder is found in the upper and right side of this small field referred to above, and I feel safe in saying that it is the most frequent of them all to become diseased. As to the etiology of the trouble, I feel sure that there are two predisposing causes, which I divide for convenience into mechanical and bacteriological, which latter condition could well be classed as primary and secondary.

The mechanical condition is the position of the gall-bladder downward and backward, with the opening not at the most dependent part, but at least one-quarter of an inch to the upper and inner side; this necessitates complete muscular contraction of the gall-bladder to evacuate its contents, which is always lacking when there have been any inflammatory changes in its walls, such as we always have when the tissues are invaded by pathogenic organisms. The secondary trouble may come as a primary infection through the ducts from the duodenum, and then, we have those violent attacks of cholecystitis in which we have no stones present, but more or less involvement of all the ducts. Or the infection may come through the portal circulation, having its inception anywhere in the alimentary tract, attenuated by the inexplicable sterilizing action of the liver, the aim of which is, no doubt, to destroy all organisms that enter it; but in this case, not being able to entirely destroy the organisms, it, at least, diminishes their virulence to such an extent, that when they reach the gall-bladder they merely set up a subacute inflammation, which, as we know, is the cause of all gall-stone formation.

To properly diagnose gall-stone disease we can not lay too much stress upon the importance of taking a careful history of the early symptoms of the

* Read before the Southern Medical Association at Birmingham, Ala., September 24, 1907.

disease; the gall-bladder being in apposition with so many other important organs, any inflammatory trouble of a few weeks' duration will involve another organ; thereby changing greatly all of the symptoms; hence the importance of the early history.

We generally find the affected gall-bladder in one of three conditions: (1), cholecystitis without stone; (2), cholecystitis with stones; (3), cholecystitis with contracted gall-bladder. The symtoms and treatment of each condition vary greatly.

(1). *Cholecystitis without stone* is really a more serious condition than with stone; as we know, the more virulent the infection the less likely we are to have stone formation. In my series of cases I had five of this type, or about 12½ per cent., with a mortality of one. This case was evidently one of diffuse cholangitis as well as cholecystitis.

The main symptoms in this condition are: a slow type of fever, a dull aching pain in the epigastrium, with distinct tenderness on pressure, which lasts several days and passes off gradually; always more or less fever present.

The operation done in each of these cases was cholecystotomy. In the future, however, I will perform cholecytectomy in cases where all the inflammatory reaction is confined to the gall-bladder, *per se*, and the common duct is not involved.

(2). *Cholecystitis with stone* may be subdivided into (a) those cases where the gall-stones are confined to the gall-bladder, and give rise to the intermittent attacks of gall-stone colic; (b), those cases where stones have passed out into the cystic duct and (c), those cases where the stones are lodged in the common duct.

(a). Given a case with a history of acute attacks of severe colic in the right side of the upper abdomen, coming on at irregular intervals, not being caused by anything that has been taken into the stomach, passing off as a rule suddenly, either by vomiting, rumbling of gas, or taking an opiate, and followed by a quick return to normal health, we are dealing with a cholecystitis with the stones confined in the gall-bladder. In my series of cases I had twenty-eight of this type, or 65 per cent., with no deaths, all treated by cholecystotomy and removal of stone.

(b). Given a case, with the history of one or more of the above attacks, coming on suddenly and passing off quickly, but after this attack the patient is found complaining of more or less tenderness over the gall-bladder, has a temperature of 100° or 102°, coated tongue, skin of a "bilious" hue, and a constant aching in the upper abdomen, as though he might at any time have another attack of the severe colic, then we are dealing with a stone in the cystic duct and the small lymphatic gland at the junction of the cystic and common ducts is involved.

In my series of cases I had four of this class, or about 9 per cent., with no deaths; all treated by cholecystotomy but one, and that was drained from the duct and the gall-bladder.

(c). Given a case, with a history of previous attacks, as related above, with a distinct jaundice, that some days is more prominent than others, with all kinds of symptoms referable to the gastro-intestinal tract, and we are dealing with cholecystitis with stone formation in the common duct. In my series of cases I had three of this type, or about 7 per cent. of all the cases, with no deaths; all treated by incision of the duct, after the method of W. J. Mayo.

(3). *Cholecystitis with contraction of the gall-bladder* is really a later result where the organ has safely withstood the onslaught of many attacks of acute cholecystitis, and we may find stones present or not. In my series of cases I had two of this type; and stones were present in each of them. One I cured by amputation and drainage of the common duct. The other recovered from the operation of cholecystotomy, but returned to me six months later with cancer of the liver.

I should like to say, in conclusion, that all cases of gall-stone disease, if not operated upon, will terminate in one of three ways: (1) Rupture that may cause diffuse peritonitis, or enter the alimentary tract. (2) By adhesions to the surrounding organs, causing such distortion of the tissues that we have slow emaciation from indigestion, and often a secondary ulceration of the stomach or duodenum. (3) By developing malignancy.

OPERATIONS ON THE BILE TRACT.

Operations upon the gall-bladder and the bile-ducts have for their object:

1. To locate and remove all foreign bodies from their lodgings. The technic has been far enough developed to permit of their removal from even the remotest hiding-place.

2. To resect all diseased tissues, as far as that is possible.

3. To drain off the infectious bile for a period of time sufficient to insure the return of normal secretion.—ALEXANDER C. WIENER in *The Lancet-Clinic*.

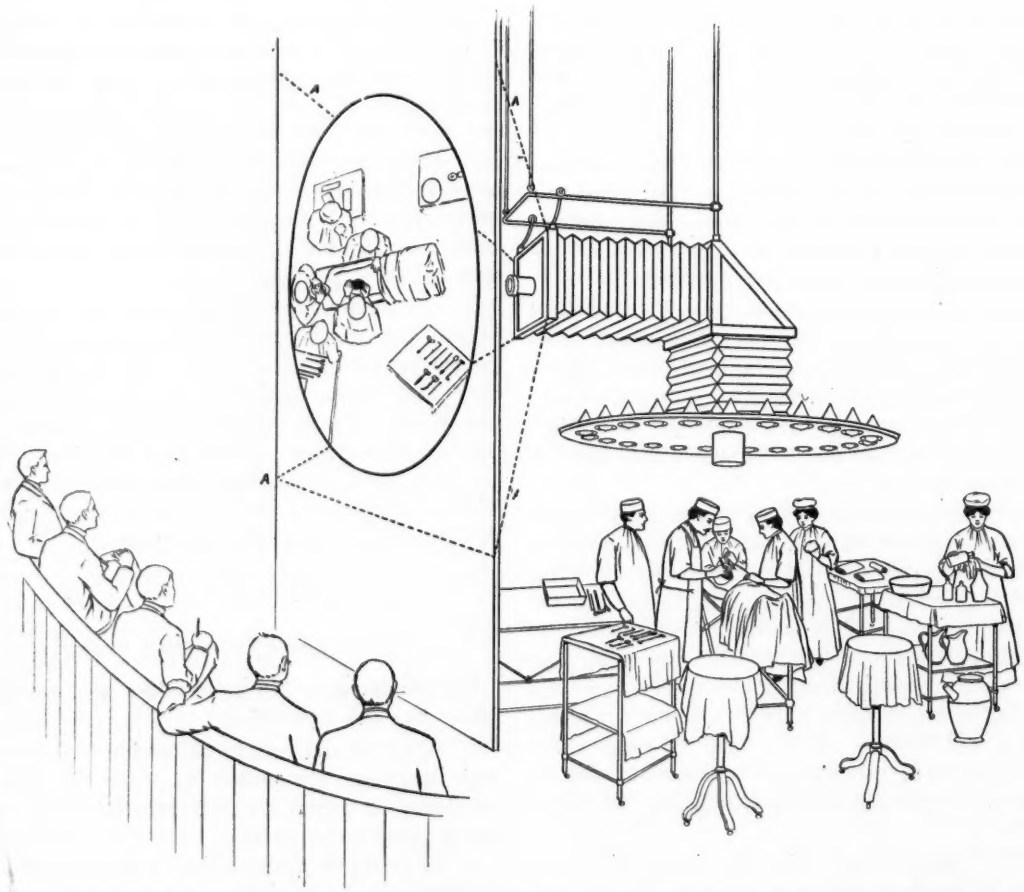
AN APPARATUS FOR PROVIDING A LARGE NUMBER OF VISITORS WITH A COMPLETE VIEW, AND FOR SECURING PHOTOGRAPHS AND MOVING PICTURES OF OPERATIONS.

CHARLES H. DUNCAN, M.D.,
Visiting Surgeon to St. Gregory's Volunteer Hospital,
NEW YORK CITY.

In the best-planned surgical theaters the provisions for demonstrating an operation are wofully inadequate. The visitor can see very little (and that little imperfectly), except the backs of the surgeons and nurses, unless he be one of a favored few who may be allowed to crowd about the table, where he is an inconvenience to those who are working and a danger to their asepsis.

A view of all the details of an operation can be obtained only from the position occupied by the surgeon and his immediate assistants, *i. e.*, from just above the field of operation itself. To provide that view to a large number of observers is the purpose of the apparatus here illustrated.

If a camera be vertically suspended, lens downward, directly over the field of operation, a picture of the latter can be focused on its ground glass screen, where it may be viewed by an audience in a room above, through an opening in the operating room ceiling. By means of a prism, however, the rays of light may be made to be reflected from the operating field into a camera horizontally suspended, and focused on a vertical ground glass screen.



Sketch showing the author's apparatus for exhibiting an operation at close range to a number of visitors, for photographing lesions *in vivo*, and for separating visitors from the operating room theater.

To accomplish this the author employs a large lens and a surface mirror, which are to be fastened in a fixture about four and a half feet above the patient. Around the mirror is a glass shield five feet in diameter, the periphery of which is supplied with lights arranged to provide a uniform, brilliant illumination without any shadows. The part of the body to be operated upon is brought under the mirror.

The illustration in general shows the aim of the invention, but it is not correct in optical and mechanical detail. The apparatus, as shown, would give an inverted image on the screen in regard to right and left, which, of course, is not desirable. With the assistance of an optical firm the author has ben able to secure the lens and mirrors for experimental purposes and with the aid of three combinations of lens and mirrors a positive reproduction of the field of operation is obtained upon the screen, and whereby good, sharp photographs may be secured. All lenses absorb color more or less, and were we to stop here the reproduction on the screen, while sharp and well defined in regard to linear aspect, would have more or less absence of color. We have, by means of well known methods, interposed several solutions, held between thin plates of glass, which intensify the red, orange and green rays.

As will be seen by a study of the illustration, the vertical light rays from the operating field are transmitted, without refraction, into an enlarging camera, where they may be focused on the vertical ground glass. If the camera screen is set in a partition separating the operating theater from a darkened room, a large number of visitors seated in the latter can secure a view of practically every step of an operation as it progresses. A megaphone set in the partition, and projecting into the operating room, will provide means by which the operator can talk to the visitors. A man stationed at the partition can make such occasional manipulations as may be necessary to keep the image in focus, or he may photograph any stage or, by operating a moving picture film, all the stages, of an operation.

The apparatus will in no way interfere with the operating room personnel. Its intended uses and advantages may be thus summed up:

To provide to a body of visitors the same view of an operation as though each of them had his eyes directly over the field. (Obviously operations in certain cavities of the body, *e. g.*, the nose and the rectum, do not lend themselves to this method.)

To completely separate the visitors from the surgeon and his staff. This eliminates the danger of contaminating the operating room by dust from street clothes and shoes. It eliminates distraction of the operators by the going and coming of visitors, and distraction of the visitors' attention from everything but the operation itself. It saves the audience from the fumes of narcotics and the steam of sterilizing apparatus. It affords a means by which visitors may have plenty of cool, fresh air, without chilling the patient.

To conveniently photograph any step of an operation on a large plate.

A moving picture of an operation for preservation may be secured by attaching a moving picture machine to the apparatus. By this means the operation can be reproduced again and again for teaching purposes in medical colleges. Arranged on the plan of the "mutoscope," such a moving picture can be studied at leisure in the doctor's office, where by means of it he can have a particular surgeon perform a particular operation for him over and over until he is thoroughly familiar with its details. Thus the technic of our master surgeons can be studied and compared at every clinic, and preserved for future generations.

233 LEXINGTON AVENUE.

GOITER.

It has seemed to me that the brilliant work of the Kochers in pointing out the factors of danger and the elements of safety; in emphasizing the importance of studying the heart; of arriving at a certain amount of knowledge of the functional competency of the heart muscle; in giving preliminary treatment; in securing rest; and in general management of the patient; until finally there has apparently been developed an opportunity for the performance of a minor operation; the ligation of one or two more bloodvessels, then later the excision of a part of the glands, of one lobe, then finally progressing until all of the lobe is removed; has been of great value. In these most severe cases, if they are operated on by a species of surgical progression, they may still be relieved. However, every surgeon must sincerely hope that the serum discovered by Beebe and Rogers will finally supplant surgical operations in Graves' disease. Certain it is that in these cases treatment by this serum has cured perhaps 60 per cent. Then, too, many of the remainder of the cases that are only partially cured or relapse, may be thrown into the class of good surgical risks; and, finally, there seems to be but little risk to the patient's life in the administration of the serum.—GEORGE W. CRILE, in *The Lancet-Clinic.*

PRACTICAL POINTS IN ANESTHESIA.

FREDERICK-EMIL NEEF,
B.S., B.L., M.L., M.D.,
NEW YORK CITY.

(*Continued from the August Number*).

SYNOPSIS OF THE PREVIOUS CHAPTERS.

A description of a system in anesthesia as followed in the German Hospital in New York City. The anesthetic, whether chloroform, ether or anæsthol, is preferably administered by the drop method on a Schimmelbusch mask. A plea is made for the gradual induction of anesthesia as a means of avoiding cardiac and respiratory collapse, which are caused by crowding the anesthetic. A description of the proper plane of anesthesia and how to maintain it during operation. The value of the signs indicating the extent of the narcosis and the significance of the respiration, color of the ear, pulse, pupil, cornea, eyelids and secretions. The signs of awakening and the indications of the pharyngeal and ano-respiratory reflexes. Vomiting during anesthesia and how to treat this condition without resorting to the barbarous method of tongue traction. The author's method of overcoming obstructed breathing, caused by too great a concentration of the anesthetic; mechanical interference; valve action of the lips, or the tongue dropping back into the oropharynx. For such emergencies the author advocates and employs a breathing tube, the use of which is described in the following chapter.

THE USE OF THE BREATHING TUBE.

The breathing tube is a soft rubber tube 5/16 of an inch in caliber and 7¼ inches in length. The end is smooth and beveled and has an opening, there being a second opening on the side, about a quarter of an inch distant. To introduce it, the tip of the nose is lifted and the rounded end of the catheter directed into the larger nostril perpendicularly to the face. A little white vaselin applied obviates friction and unnecessary traumatism. The tube is pushed gently back into pharynx behind the receded base of the tongue until the respiratory air streams freely through it. Very rarely, it is necessary to pull the tongue forward until the tube is in position. At times it is of advantage to support the angle of the jaw lightly in order to get the full benefit of the tube breathing. Oxygen, it is true, improves the color when the tongue has receded and there is partial asphyxia, but no one will argue that it *eliminates the cause of the obstruction*. The base of the tongue has dropped back into the pharynx and occludes the way to the air passages.

Sometimes, when the recession of the tongue is slight, supporting the angle of the jaw helps, because the base of the tongue is carried forward with it. Frequently this is insufficient. The tongue may be drawn forward by means of forceps or suture, but this method is crude and necessitates also the use of a wedge and mouth gag. The same accessories are imperative when an attempt is made to introduce a breathing tube *through the mouth* into the pharynx. It is for these reasons that the nasal route is preferred. The method outlined is uncomplicated—its efficiency is often striking. It seems to be the simplest solution of the problem, how to re-establish the respiratory air channel, which has been occluded by the recession of the tongue.

INDICATIONS FOR STIMULATION DURING NARCOSIS.

The volume of the pulse diminishes during protracted narcosis. The volume may be expected to decrease about one-third in the course of an hour, and as much as one-half in a two hour's anesthesia. If, in *a chloroform or anaesthol anesthesia*, the pulse gives the impression, to the palpating finger, of having lost more than one-half of its original volume, stimulation is indicated. If ether feeding through the Schimmelbusch mask and one drachm of 25 per cent. camphor-ether hypodermically do not improve the volume notably, an intravenous infusion of physiological saline solution at 98 degrees to 105 degrees F. should be given without delay. *If the anesthesia has been conducted with ether instead* of anaesthol or chloroform, camphor-ether stimulation is not in place; the resort is to strychnine stimulation instead. One twentieth of a grain of strychnine sulphate hypodermatically may be repeated in half an hour. If there is no prompt improvement in the condition of the pulse, the intravenous infusion should not be postponed. It must also be borne in mind that not drugs, but infusion of fluid alone, can make good any *great* loss of blood.

THE INFLUENCE OF MORPHIN ON NARCOSIS.

During the course of any operation the surgeon is responsible for a long chain of ingoing impulses, which travel along the sensory paths from the site of operation to the spinal cord and brain. Morphin diminishes the awakening effect of these impulses by benumbing the perceptive centers in the brain. The correct plane of anesthesia for a patient who has had morphin, for example, one-quarter of a grain of morphin sulphate hypodermatically half an hour before narcosis, must appear very superficial as compared with a case to which morphin has not been administered. Not only is considerably less of the anesthetic required, but the lid, for instance, may be quite tonic without indicating that more of the anesthetic is necessary. These observations apply cardinally to anesthetics with chloroform, or chloroform combinations, such as anaesthol.

General Course of the Anesthesia.

The ideal narcosis is tranquil. It resembles a natural sleep. The breathing is unimpeded and easy. Any change in the character of the breathing sound, or the rhythm, demands attention. If, for the moment, the anesthetic has been given too hurriedly, a few breaths of air will restore the calm. If, on the other hand, signs of awakening are discovered, the lid becomes more tonic, the corneal reflex more active, a tear appears in the eye, the patient begins to sweat, saliva collects in the throat, the pulse becomes more rapid, a few drops of the anesthetic should be administered until the desired free and unembarrassed respiration returns.

(*To be continued.*)

NOTICE OF OMISSION.

The beginning of the chapter on "Obstructed Breathing", printed below, was accidently omitted from the previous installment of Dr. Neef's article. It should properly follow the chapter on "Vomiting During Anesthesia" which is concluded with the sentence "There need be no fear that the patient will become fully awake."

Obstructed Breathing.

Many anesthesias are unsatisfactory because the breathing is obstructed. To my mind the prime cause of obstructed breathing is too great a concentration of the anesthetic. The importance of avoiding the *crowding of the anesthetic* is the secret of a good narcosis.

The irritability of the air passages varies greatly in different individuals. Concentrated vapor may cause reflex spasm of the larynx and, consequently, obstructed breathing. This is the condition that leads to what is ordinarily called *respiratory collapse*. It is due to crowding—undue concentration—rather than excessive quantity of the anesthetic. If there were no superior laryngeal and trifacial nerves to warn the inexperienced or inattentive by closing the larynx to more of the anesthetic, real *respiratory paralysis,* which is apt to be fatal, and is due to direct toxic action of the anesthetic on the respiratory center, might be more common.

"Have I crowded the anesthetic?" is the first question that should be considered when there are signs of obstructed breathing. The jaw is rigid, the patient is almost awake, and yet the mask is lifted to admit more air. Paradoxical, as it may seem, the jaw begins to relax, the breathing becomes free and the anesthesia at once more profound.

LITHOLAPAXY AS AN OFFICE OPERATION, WITH REPORT OF CASES.

George Knowles Swinburne,
New York.

In the April issue, 1902, of *The Journal of Cutaneous and Genito-Urinary Diseases,* I published a report of a case of litholapaxy under cocain. The patient had two rather large calculi, which were removed at two sittings a month apart. The two calculi together weighed 500 grains. Three months after this I washed out of the bladder, with the evacuation pump, a new small calculus weighing two grains. Six months later I washed out of the patient's bladder a lot of uric acid sand, and two years later I removed another calculus by litholapaxy under cocain, in two sittings.

For several years thereafter the cases of litholapaxy, which I performed, were done under general anesthesia, either at the patient's home or in the hospital, none of these seeming suitable for operation under local anesthesia.

In the past year, in two cases, I have done litholapaxy in the office under very slight local anesthesia, the histories of which I present:

Case I.—A. F., 45 years old, was referred to me in October, 1907, by Dr. Charles Kennedy, of New York. He had been suffering from urinary disorder for a year, having great frequency, eighteen times in the twenty-four hours; and often could not hold the urine, it coming away from him suddenly before he could get to a place of convenience. Dr. Kennedy discovered that he had stone and wished to place him in the hospital to perform a suprapubic cystotomy in order to remove it, but as the family objected, Dr. Kennedy, referred him to me. When the patient appeared, he had a cloudy urine; he did not completely empty the bladder, but had two ounces of residual urine. At the first examination I was unable to find the stone, which was a small one, with the searcher. Before using the cystoscope, I put him, as is my habit, on hexamethylene-tetramin for several days, then made the cystoscopic examination, using a little cocain in the anterior urethra. The stone, though small, was mulberry in shape and I thought would prove a hard one. During the next week I kept the patient on hexamethylene-tetramin, and at the end of the week performed litholapaxy in my office. I first injected three ounces of a 1 per cent. solution of cocain into the anterior urethra which was held for five minutes. Just before putting the patient on the operating table I passed a catheter, drew off the residual urine and injected one-half ounce of 1 per cent. cocain into the bladder. This latter, I fancy, was of but little use for anesthesia of the bladder. The patient was then placed on the operating table, with the legs over leg rests, and six ounces of warm sterile water in-

jected into the bladder through a catheter and the lithotrite gently inserted, using plenty of white, sterile vaselin as a lubricant. By raising the handle and depressing the curve of the back of the instrument in the bladder to form as low a level as possible. The blades were opened and the stone fell at once into the jaws and was readily crushed and the fragments washed out through a 22 F. evacuating tube with the Chismore pump. The whole operation occupied about one-half an hour and was practically painless. The patient was sent home to Brooklyn to go to bed, and told he could go to work the next day, which he did. He was to report in a week for cystoscopy and to use hexamethylene-tetramin in the meantime. There was a slight reaction after the operation and three days later he passed one fragment about as large as the largest of the specimen.

Cystoscopy, one week later, showed a perfectly clear bladder. There were about two drams only of residual urine and the number of times of urination had been reduced to twelve in the twenty-four hours. He was turned over to Dr. Kennedy for further attention to his bladder. One month later he was passing water nine times daily, there was no residual urine, the bladder completely emptying itself. The patient was again seen by me about three months after this last examination, and his condition was about the same.

CASE II.—J. B., 65 year old. This patient, four months before I saw him, had hematuria and great bladder disturbance. His physician found he had an enlarged prostate, some residual urine, and he advised that prostatectomy be performed. The patient was then brought to me. Under systematic catheterization, local treatment of the bladder, and hexamethylene-tetramin, the urine became clear, the blood ceased, and the number of urinations at night reduced from five to three times, and the amount of residual urine reduced to one-half ounce to two ounces, varying between these figures. I was using a silk woven catheter to draw off his urine, and one day I felt a grating against the tip. The cystoscope revealed a mulberry-shaped stone, a little larger than the one removed in Case I.

Operation was performed January 1, 1908, in same manner as in Case I. I did a preliminary meatotomy. The stone was a very hard one and slipped many times from the grasp of the lithotrite before it could be crushed. This occupied considerable time. The lithotrite was removed and a 22 F. evacuating tube inserted, and all but one of the fragments, which was too large to come through, were washed out. I felt that enough had been done for one day and sent the patient home to go to bed. There were some reaction and slight fever that night, but the following day the patient was comfortable, was up and about, and came to me the day after that.

One week later, under cystoscopy, the remaining fragment was found on the bladder floor in the slight prostatic pouch and appeared through the instrument to be about one-half the size of the original calculus. I did not attempt to move it about with the beak of the instrument, as I might have done, to determine its size and character. The patient was perfectly comfortable, no longer obliged to get up at night to urinate, and showed only two to four drams of residual urine. The operation of litholapaxy was concluded ten days after the first in the office and under cocain, as before. My surprise was great, when, on grasping and crushing the fragment, I found that no more pieces could be felt large enough to crush; so I used a No. 27 F. evacuating tube and obtained the fragments, with no evidence of there being more left. I washed out the bladder, filled it with clear water, inserted the cystoscope and found a perfectly clear bladder. The fragment then must have been a mere shell which had been broken off from the surface at the first operation, and at the time of cystoscopy it was lying with its outer surface turned toward the lens which made it appear to be larger than it really was. There was no reaction after this second manipulation of the patient. He was, as usual, sent home to bed for the next twenty-four hours.

Since then he has had an operation for cataract successfully performed on each eye, and is out and about and in good health.

The comparative ease with which the operation in these two cases could be performed has strongly impressed me with the advantages of doing litholapaxy in suitable cases and, further, of the desirability of using local anesthesia when possible. Further, it may prove better to repeat the operation, if all the fragments cannot be removed at one sitting, rather than work over the patient to the point of exhaustion in order to get the last fragment. I have done the operation several times in this manner, but with slight reaction. Patients are generally more comfortable when even a portion of the stone has been removed and but little time is lost by them as compared to when the cutting operation is done.

I do not operate till the patient has been on hexamethylene-tetramin for several days and has had some local treatment of the bladder.

64 EAST 56TH STREET.

TYPHOID PERFORATION.

This point should never be lost sight of,—that it is one thing to operate on a case of typhoid perforation, and a decidedly different thing to operate on a case of septic peritonitis, the result of typhoid perforation, which has existed for some time and which has been evinced by milder and more localized symptoms which have not been recognized and properly interpreted.—R. H. HARTE in the *Boston Medical and Surgical Journal.*

A NEW RECTAL SPECULUM.

G. A. HUMPHREYS, M.D.,
NEW YORK.

In rectal work I have found that the Sims vaginal speculum is the most useful of all specula—though not originally intended for the rectum.

There are objectionable features to the use of such a speculum in the rectum. Some of the objectionable features have been the difficulty in getting blades of right dimensions, of finding blades with free edge sufficiently blunt to prevent injury to the mucous membrane, particularly over the prostate, and also the difficulty of inserting such an instrument with the convex surface of the blade anteriorly without occasionally denuding mucous membrane over the prostate gland and occasioning pain—this because of the presence of the other blade coming in contact with the body, and thus not allowing the inserted blade to dip backward sufficiently.

To meet these objectionable features, I have designed the instrument shown in the illustration. To overcome the sharp edge, I have added a collar that projects inward only, as shown. To overcome the interference of the blade not in use, I have rotated it so as to make it point in an opposite direction and have increased the distance between the blades to eight inches.

The length, depth and width of blades are those that we find the most generally useful at St. Bartholomew's Clinic and the N. Y. Polyclinic in the rectal department, and such sizes are the ones that Dr. James P. Tuttle uses much more than all others.

Dimensions:

Length of blades, 3¼ inches.

Distance between blades, 8 inches.

Larger blades, 1 1/16 inches wide, ½ inch deep.

Smaller blade, 15/16 inch wide, ½ inch deep.

The above instrument is just as good for vaginal work as a Sims speculum, carrying the same sized blade. It is a safe and very useful instrument in rectal work, with a wider range of usefulness than any Sims' speculum. It can also be used as a retractor in abdominal work.

101 WEST 81ST STREET.

THORACOTOMY FOR EMPYEMA.

Simple incision lacks the fundamental principles of surgery, and most advanced modern surgeons do not consider it a recognized method of procedure for the surgical treatment of empyema. The established plan of procedure, which has withstood the test of time, is that laid down by Hippocrates, with one exception. Hippocrates trephined the rib to avoid injury of the intercostal vessels and nerves, while we, with a more perfect knowledge of anatomy, prefer to resect a portion of one or more ribs, thus enabling the surgeon to introduce one or more fingers, or the whole hand, into the pleural cavity, and by intrapleural manipulation break up all adhesions, remove the large masses of coagulated lymph, and thereby accomplish a more thorough surgical operation.—P. T. O'CONNOR, in *Medical Record.*

American Journal of Surgery

PUBLISHED BY THE
SURGERY PUBLISHING CO.
J. MacDONALD, Jr., M.D., President and Treasurer

92 William Street, N. Y., U. S. A.

to whom all communications intended for the Editor, original articles, books for review, exchanges, business letters and subscriptions should be addressed.

SUBSCRIPTION PRICE, ONE DOLLAR
FOREIGN, SIX SHILLINGS

Original Articles and Clinical Reports are solicited for publication with the understanding that they are contributed exclusively for this journal.

It is of advantage to submit typewritten manuscript; it avoids errors.

CHANGE OF ADDRESS. Subscribers changing their addresses should immediately notify us of their present and past locations. We cannot hold ourselves responsible for non-receipt of the Journal in such cases unless we are thus notified.

ILLUSTRATIONS. Half-tones, line etchings and other illustrations will be furnished by the publishers when photographs or drawings are supplied by the author.

☞ SPECIAL NOTICE TO SUBSCRIBERS

The "American Journal of Surgery" is never sent to any doctor except upon a definite written order. Present and prospective readers please note this.

WALTER M. BRICKNER, M.D., Editor

NEW YORK, SEPTEMBER, 1908.

CONGENITAL STENOSIS OF THE PYLORUS IN THE ADULT.

In the year 1879, Heinrich Landerer (Inaugural Dissertation, Freiburg), reported a series of nine cases in adults, varying in age between 43 and 63, in which at autopsy he could demonstrate a narrowing of the pylorus, which he believed to be of congenital origin. In 1885, Maier (*Virchow's Archiv*, CII, 1885) reported thirty-one cases of a similar lesion, some of which were accompanied by muscular thickening of the pylorus; the latter he termed the "combined" form. Little clinical attention was paid to this entity until Maylard (*Transactions of the Clinical Society of London*, 1904) reported seven cases operated upon for intractable gastric symptoms, in which a narrowing of the pylorus was easily demonstrable, and for the relief of which he performed gastro-enterostomy. It may be said in passing, that the arguments set forth by Maylard and others as to the congenital origin of the stenosis, leave little room for doubt that this is the correct interpretation of the lesion.

In a recent number of the *British Medical Journal* (July 14, 1908), Maylard reports twelve additional cases, while Russel, whose paper deals with the subject *in extenso*, reports three more. The symptoms of this disease are not especially characteristic. There is usually a history of gastric dyspepsia of long duration, sometimes even dating to childhood, of intermittent character, occasionally of the so-called "bilious" variety. According to Maylard, the periods between the attacks gradually lessen as age advances. The history, as a rule, also reveals the fact that the patient has learned to be very careful of the quality and quantity of the food to be taken, any deviation from which is apt to induce an attack of dyspepsia. In not a few of the patients, it was thought that the gastric condition was due to active ulceration, or to its subsequent effects. Sooner or later, however, the symptoms of pyloric stenosis become manifest. There may be dilatation, and in two out of three cases, Russel could induce gastric peristalsis. In the combined forms of congenital stenosis, a pyloric thickening, first noted by Kussmaul, may be palpable through the abdominal wall. Russel believes that a diagnosis is possible by paying attention to the above data, and by exclusion of the well recognized causes of pyloric stenosis. Maylard, while not quite as optimistic in regard to the possibility of diagnosis, believes that at all events the intractability of the malady to ordinary remedial measures, the lessening periods between the attacks, and the evidences of pyloric stenosis, are sufficiently clear indications for exploratory section.

It would appear upon first thought, that the operation of gastro-enterostomy would be almost an ideal procedure for the cure of this lesion. Indeed, this is the operation that has been carried out upon all the cases thus far reported. In his present communication, however, Maylard reports that in his hands the operation has not been followed by the success expected. When the subsequent histories of these patients were traced, he found that in only a minority were the symptoms permanently relieved; some were practical failures, while the majority showed more or less improvement. Maylard accounts for the inadequacy of the operation in two ways: first, that the long duration of the disease has induced a chronic gastritis which persists despite the drainage; second, that the gastro-enteric opening has a tendency to close because the pylorus is not sufficiently narrowed to counteract the normal *vis a tergo* of the gastric contents, which still prefer the natural outlet. For these reasons, Maylard believes that some form of pyloroplasy is preferable.

There is little doubt that the above reports throw considerable light on a group of cases that have hitherto puzzled surgeons in the course of exploratory operations for obscure diseases of the stomach.

The recognition of this new clinical entity is particularly interesting in the light of our knowledge of a similar lesion in infants, whose clinical manifestations have long been familiar. We may look upon the above reports, therefore, as important contributions to our knowledge of gastric diseases.—E. M.

DIRECT TRANSFUSION OF BLOOD.

The subjects of hemolysis, opsonization, and other chemical and chemico-physical effects of one animal's blood upon another are attracting the interest of many observers, presenting, as the subjects do, many important problems that have yet to be attacked, and affording, perhaps, the approach to a possibly brilliant therapy.

Towards the solution of one of these problems, much progress has already been made. Another year or two may determine to what extent direct blood transfusion, as revived and elaborated by Crile, will be accepted as an established therapeutic procedure. In other hands, as well as in Crile's, direct transfusion has saved lives. It has also been the cause of fatalities—although probably always in cases where death was expected without it. Clotting and embolism are eliminable by nice technic; not so the more imminent danger of hemolysis. Our present methods for predetermining the occurrence or probable non-occurrence of hemolysis are crude and time-consuming, and we are not yet able to state with assurance that what does not happen in the test-tubes will also not happen in the patient's bloodvessels. Until we have a more refined and more rapid determination method, and more definite clinical indications and contraindications, one is justified in an urgent and desperate case in taking the chance of hemolysis without submitting to a laboratory examination. In such cases the chances of danger are probably minimized by selecting as the donor a close blood relative of the patient, preferably a brother or sister.

Lambert recently reported (*Medical Record*, May 30, 1908) a brilliant cure of melena neonati effected by a transfusion from the father, performed by Carrel himself by means of his method of bloodvessel suture. If every surgeon were as able to perform this delicate feat it would still be difficult to understand why anyone should adopt this method by choice. The Crile canula method provides certainly, and probably more expeditiously, all that the suture method can, viz., a non-leaking, patent communication from artery to vein, and a continuous surface of intima over which the blood is to flow.

Surgical Suggestions

IN AFFECTIONS OF THE SCALP.

W. M. B. H. M. H.

An easy means of holding a small scalp dressing in place consists in tying over it strands of the patient's hair.

Strong antiseptic solutions should be avoided in dressing scalp wounds. For "wet dressings" Thiersch's (boro-salicylic) or Burow's (aluminum acetat) solution is sufficiently antiseptic.

Judiciously placed sutures are far more satisfactory in arresting the hemorrhage from a scalp wound than is an attempt at multiple ligation.

Transverse scalp wounds require comparatively many sutures, longitudinal wounds but few.

If the patient is a brunette and the scalp dressing is fastened as above described, or by collodion, the white gauze should be covered by a piece of black or brown cloth, unless the patient has enough hair to conceal a small dressing. Black bandages may be used to advantage in scalp dressings on dark-haired individuals.

For the retention of an application or dressing on the scalp a gauze cap may be more quickly applied than a bandage and, for children especially, it will be more comfortable and less apt to be disarranged. A single thickness of gauze (cheese cloth) about a yard long and 28 inches wide (for an adult head) is folded on its length, in the manner shown in Figure 1. The gauze is then laid on the head, with the long fold next to the scalp and the folded end a little below the occiput, the free end of the long fold thus hanging over the face. The free edge of the short fold is brought to a convenient position, and its ends are tied snugly under the chin. (Figure 2). Then the long end is lifted back over the short end tied snugly beneath the occiput (Figure 3). The cap thus adjusted consists of three thicknesses of gauze.

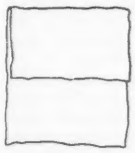


FIG. 1.

FIG. 2.

FIG. 3.

Book Reviews.

Abdominal Hernia. Its Diagnosis and Treatment. By W. B. DE GARMO, M.D., Professor of Special Surgery (Hernia), New York Post-Graduate Medical School and Hospital, etc. Octavo; 458 pages; 226 illustrations. Philadelphia and London: J. B. LIPPINCOTT Co. Price, $5.00, net.

This is not, nor is it intended to be, an exhaustive monograph descriptive of all the procedures that have ever been devised for the treatment of each of the varieties of abdominal hernia. It is, however, an exceedingly interesting, straightforward, and essentially comprehensive manual, written in a most pleasing style, and presenting to the general physician—for whom it is chiefly intended—many of the practical observations of a ripe experience in this special field.

The anatomy of inguinal and femoral herniæ, and their varieties, are clearly described. The principles involved in treatment, and the steps of the operations advised are likewise made very plain. One may differ from the author in some minor particulars, *e. g.*, in the preparation of the patient's skin, but certainly those who follow his directions will not go astray.

The sections on trusses and truss-fitting will be found especially instructive and valuable. They will prove vastly illuminating to the many physicians—and not few surgeons—who, ignorant of the mechanics of trusses, leave the fitting to the sometimes equally ignorant truss dealer. Speaking generally, De Garmo prefers the Hood truss for most small or moderate-sized inguinal herniæ, and next to this the cross-body truss. Of the spring trusses the English pattern is superior to the French or German.

Ventral and umbilical hernia, the rarer forms of hernia and strangulated hernia are amply considered, as are operative contra-indications and complications. The author did well, we believe, in not extending his work to include internal herniæ—since these belong to the surgery of intestinal obstruction.

Medical Gynecology. By SAMUEL WYLLIS BANDLER, M.D., Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital; Associate Gynecologist, Beth Israel Hospital, New York City. Octavo; 675 pages; 135 original illustrations by Bosse. Philadelphia and London: W. B. SAUNDERS COMPANY, 1908. Cloth, $5.00 net; half morocco, $6.50 net.

The author of this compendious work has given us a book which views broadly the diseases peculiar to women, and which is based upon the growing belief that many of the gynecological diseases may be satisfactorily treated without operation. He draws a sharp line, however, between those conditions which can be thus handled, and those to which the knife only can bring relief.

It is scarcely possible to consider here all the elements which Bandler has brought within his purview. We may say, however, that electricity, massage, mechanical supports and hydrotherapy are given full consideration. Especial attention is given to the associated nervous conditions in pelvic disease. Among the conditions which the author treats are the vulvar and vaginal inflammations, displacements, the inflammatory conditions of the cervix, uterus and parametria, the vaginal herniae, and the malignant diseases. We cannot quite grasp the reason for inserting a long—although interesting—chapter on Ectopic Gestation, only to end it by stating that the treatment is surgical. And we believe that many authorities will question the dogmatism of the author in stating that inflammatory conditions are usually responsible for extra uterine pregnancy. On other questions we rather admire his authoritative method of statement, for it will add value to his opinions.

Dr. George Mannheimer has contributed a most readable chapter on Constipation which will well repay its perusal.

The illustrations are made for the book, and are quite excellent.

The work will find a valued place, no doubt, in the library of the general practitioner to a greater extent than in that of the specialist, although the latter could also, we believe, learn much from its pages.

Adenomyoma of the Uterus. By THOMAS STEPHEN CULLEN, Associate Professor of Gynecology in Johns Hopkins University. Large octavo; 270 pages; 68 illustrations by Hermann Becker and August Horn. Philadelphia and London: W. B. SAUNDERS COMPANY, 1908. Cloth, $5.00 net; half morocco, $6.50 net.

The credit for sharply differentiating and first thoroughly describing adenomyoma of the uterus belongs to Cullen. In the monograph under consideration he has collected some ninety odd cases and has studied them all macrascopically and microscopically.

His main contention that the glandular elements of the uterine adenomyomata have their origin in the flowing outward of the mucous membrane of the uterus seems now, and especially by this work, to be firmly established. We cannot feel quite so certain as the author, however, that he has succeeded in establishing a clinical course by which the adenomyomata can be distinguished from other uterine growths. Of course, if the examination is coupled with a curettage, and the curettings show normal but thickened mucosa, the belief that an adenomyoma is the cause of the symptoms may be well grounded. In any event, treatment will be the same.

The book is elaborately illustrated and splendidly made. It is a valuable monograph in every sense.

Golden Rules of Dietetics. By A. L. BENEDICT, A.M., M.D., Buffalo; Member of American Academy of Medicine; American Gastro-Enterological Association, etc.; Author of Practical Dietetics. Duodecimo; 407 pages. St. Louis: C. V. MOSBY MEDICAL BOOK AND PUBLISHING CO., 1908. $3.00.

This is without doubt the most practical book on dietetics of which we are cognizant. The exposition is systematic, and concise to a degree; theoretical matters are almost entirely eliminated, while mooted topics are accurately summarized. Despite this compactness we venture to say that there is hardly a phase of dietetics which is not discussed in this volume. Particularly refreshing is the common sense which pervades this work. The author is anything but the rabid dietetist of the German type, who believes that ruin will follow if the patient deviates even slightly from the iron-bound regimen prescribed.

The reading of this book has afforded the reviewer unusual pleasure, and he does not hesitate to recommend it to those interested in the subject.

Etude sur les Contusions, Dechirures et Ruptures du Rein. DR. GEORGES LARDENNOIS, Ancien interne des hôpitaux de Paris, Prosecteur à la Faculté de médicine. Large octavo; 230 pages; illustrated. Paris: G. STEINHEIL, 1908.

This is a complete monograph, treating of the etiology, pathology, symptomatology, diagnosis and treatment of trauma sustained by the kidney. The author has performed experiments upon animals and the human cadaver to show the mode of origin and the anatomical changes effected by the lesion. In contusion expectant treatment is indicated; in large hemorrhages suture or nephrectomy, by the lumbar route is urgently advised. The prognosis is greatly influenced by lesions to other viscera. Non-operated cases show a mortality of 28 per cent., operated cases of only 18 per cent. The author has written a clear and exhaustive article, which concludes with a large bibliography and résumé of cases hitherto published.

Die Verletzung der Arteria Meningea Media. Von DR. CUSTODIS, Stabs- und Abteilungsarzt im 1. Westpreussischen Felde-Artillerie-Regiment No. 35. Duodecimo; 200 pages. Berlin: AUGUST HIRSCHWALD, 1908. Price, 3 marks.

This is a small monograph devoted to a clinical study

of injury to the middle meningeal artery. The author discusses the anatomy of the artery and of the hematoma that develops from an injury to it; the frequency and mode of occurrence of such an injury; the immediate and remoter symptoms; diagnosis; prognosis and treatment. In addition, 70 pages are devoted to casuistics, 8 to statistical tables and 4 more to bibliography.

Surgical Therapeutics. By EMORY LANPHEAR, M.D., Ph.D., LL.D., St. Louis, Mo., Professor of Surgery, Hippocratean College of Medicine; Chief Surgeon to the Women's Hospital of the State of Missouri, etc. Duodecimo; 396 pages. Chicago: THE CLINIC PUBLISHING CO., 1907.

This consists of terse advice upon a variety of surgical subjects, alphabetically arranged. Drug therapy (especially by "active principle" medication) and non-operative management are particularly considered. The style is colloquial, and, for the most part, the work is elementary. The longest section is that devoted to anesthesia by the hyoscine-morphin-cactin (H-M-C) combination.

Consumption; Its Prevention and Cure Without Medicine. With Chapters on Sanitation and Prevention of Other Diseases. By CHAS. H. HANLEY DAVIS, M.D., Ph.D., Member of Connecticut State Medical Society, etc. *Second Edition*, Enlarged. Duodecimo; 218 pages. New York: E. B. TREAT AND CO., 1908. $1.00.

This small volume is intended for the lay mind. It is sensibly written and we have noted no statement toward which objection might be raised. The book could be safely recommended to intelligent patients who are desirous of knowing more of the rational management of tuberculosis.

Nouveau Traite de Chirurgie. Publié en fascicules sons la direction de A. LE DENTU et PIERRE DELBET. XVII. **Maladies de L'Oeil,** par ALBERT TERSON, Ancien Interne des hôpitaux, Ancien chef de clinique ophthalmologique à la faculté de Médecine de Paris (Hôtel Dieu). Large octavo; 400 pages; 142 illustrations. Paris: J.-B. BAILLIÈRE ET FILS, 1908.

This volume has been written for the general practitioner and general surgeon; therefore the sections dealing with errors of refraction, amblyopia and deep intraocular lesions are greatly abbreviated. On the other hand, the chapters which treat of the diseases of the lids (especially plastic operations), the lacrimal apparatus and the conjunctiva are particularly complete. The same aim has been kept in view where an error in diagnosis, for instance confusion of glaucoma and iritis, would endanger the eye. Here all safeguards and differential points are emphasized and caution advised. The book is adequately illustrated, and references to the literature are freely supplied. The feature of eliminating technicalities, but ill understood by anyone but an ophthalmologist, makes this book particularly valuable to the readers it is meant for.

Traitement chirurgical actuel des Kystes hydatiques du Foie et de leurs Complications. By DR. ALBERT CAUCHOIX, Ancien Interne of the Paris Hospitals. Octavo; 167 pages. Paris: G. STEINHEIL, 1908.

In a fairly exhaustive monograph, the author discusses the best methods of treatment in cases of hydatid cysts of the liver. Basing his deductions upon the large material seen by himself and Prof. Quénu at the Hôpital Cochin in Paris, he arrives at the following conclusions:

The present day tendency is to attack echinococcus cysts of the liver either by the method of Lindemann-Landau, viz., marsupialization, or by suture of the pockets with primary reduction or burial. In aseptic cases marsupialization is inadvisable both because of the secondary hemorrhages which may occur, and because a persistent sinus is the usual outcome. Extirpation should be reserved for those cases in which the cysts lie so far outside the liver that ligation of a pedicle is possible.

The author believes that the best treatment of aseptic cysts comprises the following steps: (1) Incision of the wall. (2) Evacuation of the contents. (3) Injection of 1 per cent. solution of formalin, which is allowed to act for about five minutes. (4) Evacuation of the formalin solution and whatever particles that have been liberated by its action of the inner aspect of the cyst. (5) Suture of the two lips of the incision and fixation of the same to the peritoneum at the site of the abdominal wound.

The subject matter discussed in this monograph is divided into ten chapters, about one-half being relegated to the treatment of complications. Although representing the most advanced views held by French surgeons, we note with some regret that the work and opinions of German writers have been almost entirely neglected. Those who have the desire to study this subject in detail will doubtless find many valuable points in Cauchoix's monograph.

Books Received

Medical Gynecology. By SAMUEL WYLLIS BANDLER, M.D., Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital; Associate Gynecologist, Beth Israel Hospital, New York, etc. Octavo; 675 pages; 135 original illustrations by K. K. Bosse. Philadelphia and London: W. B. SAUNDERS CO., 1908. Price, cloth, $5.00 net; half morocco, $6.50 net.

Pulmonary Tuberculosis and Its Complications. With Especial Reference to Diagnosis and Treatment for General Practitioners and Students. By SHERMAN G. BONNEY, M.D., Professor of Medicine, Denver and Gross College of Medicine; Visiting Physician to St. Luke's Hospital, Denver. Octavo; 778 pages; 189 illustrations (20 in colors). Philadelphia and London: W. B. SAUNDERS CO., 1908. Price, cloth, $7.00 net; half morocco, $8.50 net.

Diseases of the Rectum and Anus and Sigmoid Colon. By F. SWINFORD EDWARDS, F.R.C.S., Senior Surgeon to St. Marks Hospital for Diseases of the Rectum; Surgeon to the West London Hospital, etc. *Being the Third Edition of Cooper and Edwards' Diseases of the Rectum and Anus.* Octavo; 442 pages; 102 illustrations. London: J. & A. CHURCHILL. Philadelphia: T. BLAKISTON, SON & Co., 1908. Price, $4.20 net.

Letter to the Editor.

[The publication of a letter to the Editor is not intended to imply that he is in accord with its sentiments.]

PHILADELPHIA, August 12, 1908.

To the Editor of the AMERICAN JOURNAL OF SURGERY.

Dear Doctor:—I wish to avail myself of your courtesy to point out a few errors in the painstaking and comprehensive review of my work on the "Internal Secretions" published in your July issue. Your reviewer states: (1) That I employed only confirmatory evidence; he will find on pages 889, 974, 1384 and elsewhere proof of the fact that *pro* and *con* testimony is used in mooted questions; (2) that my testimony rests almost entirely upon circumstantial evidence; even a cursory glance through the work will show that it is based on direct evidence, viz., experimental and clinical facts; (3) that mine is "another method of symptomatic therapy"; the fact that I urge the use of drugs which increase the production of auto-antitoxin and phagocytes in the blood proves that my system aims to counteract the cause of disease; (4) that my method "fails us in many diseases in which it should play the largest part"; it fails us in no disease whatever, and I would urge your reviewer to kindly name any disease of the kind he means, so as to enable me to furnish him an outline of the process involved.

Respectfully yours,

C. E. DE M. SAJOUS.

Progress in Surgery.

A Résumé of Recent Literature.

Injuries of the Cranial Nerves from Fractures of the Skull. J. J. THOMAS, Boston. *Journal of the American Medical Association,* July 25, 1908.

The records of fracture of the base of the skull in the Boston City Hospital give evidence of such involvement in 12.75 per cent. of the cases. The most frequent nerve injury is that of the facial, which was seen in 44 cases, in two of which the injury was bilateral. Of course functional defect of this nerve would be most readily observed in unconscious or semi-conscious patients. The next in frequency was the abducens, which was paralyzed in 12 cases, once bilaterally. The auditory was affected 10 times, and probably more, as cases of only moderate deafness were excluded on account of its being possibly due to injury of the cochlea or tympanum. The third nerve was involved 9 times, the optic nerve 8 times, and the olfactory, patheticus, trigeminus and hypoglossal, each once. The combinations of nerves injured were not very frequent. Once the second, seventh and eighth were affected together. Both eighth nerves twice; both seventh nerves once and both seventh and left sixth once. Both olfactory nerves, with the left fourth and partial left third was another combination. The second, third and sixth on one side, once; the third and sixth once; the third and seventh twice, once on the same side; the right optic and both sixth nerves once; the optic and auditory twice, once on the same side and once crossed. The seventh and eighth together twice, the seventh and sixth twice and the seventh and twelfth once. In eight cases nerves on both sides of the skull were affected. Several illustrative cases are reported and Thomas quotes authorities, especially Cushing, in regard to the usual or probable course of fissures of the base in skull fracture and the relative liability of special nerves or combinations of nerves to be involved in the injury. The only inference he thinks we are justified in drawing in regard to this latter point is that, aside from the combinations of nerves lying close together, so as to be liable to injury from a single fissure, the frequency of multiple fissures makes the groups, both as to the nerves involved and the side affected, much more irregular than might be expected. We probably have to do with varying causal conditions in these injuries, meningeal hemorrhage or simple increased cranial pressure, as well as direct laceration, may be factors. The prognosis differs markedly in these cases. In some the cure is rapid, and in these we have probably only an edema of the nerve sheath as a cause. In others, recovery is very slow, and in many, incomplete. This is especially true in injury of the optic nerve and possibly also of the auditory. The severer cases of injury of nerves that pass through a long canal in the bone, with consequent greater liability to displacement of bone, are more likely to be unfavorable. The treatment, aside from the use of drugs such as strychnin for the arrest of atrophy, consists in the use of electricity and massage where practicable. In the very resistant cases, as of the facial nerve, anastomosis with an uninjured nerve such as the hypoglossal is suggested as most promising.

Cerebral Puncture (*Zur Frage der Hirnpunktion*). FEDOR KRAUSE, Berlin. *Berliner Klinische Wochenschrift,* July 20, 1908.

Krause enumerates some of the difficulties and dangers incident to this diagnostic measure devised by Neisser and Pollak. In the first place, it is sometimes very difficult, especially in the muscular regions of the scalp, to find the opening after it has been made. In one case it was necessary to perform a complete dissection before the hole was found. The second and most common danger is that of hemorrhage. The danger lies not so much in puncture of the branches of the middle meningeal artery as in the numerous intracranial veins and sinuses. Abnormalities of the latter are exceedingly common, especially as the result of intracranial lesions. The difficulty of avoiding these vessels is aggravated by the fact that in cerebral disease they have a tendency to dilate. The author cites a number of instances of hemorrhage after aspiration which were only controlled after rather extensive trepanations. A third danger is that infection of the meninges after aspiration of an abscess. This is particularly liable to happen because intracranial abscesses are as a rule under considerable tension. Krause makes it a rule, therefore, to never aspirate the brain in cases of intracranial suppuration, until the dura is opened and the arachnoidal space is well walled off with packings. The fourth danger is in new growths and of prolapse of the growth through the opening made by the puncture with extradural extension. This complication was seen by the author in one case.

The author does not entirely condemn this method of diagnosis. He believes, however, that the indications should be narrowly limited to cases in which every other method of diagnosis has proven futile. It should also be performed only when all facilities for trephining are at hand.

Radical and Palliative Operations for Cerebral Hemorrhage. ALBERT E. STERNE. *The Lancet-Clinic,* June 20, 1908.

The symptoms of general character pointing to cerebral hemorrhage, whether of traumatic or non-traumatic origin, are collapse and shock, with a greater or less degree of coma. While coma is not an absolute guide to the magnitude of any hemorrhage, as a rule, it is a fairly safe criterion. Coma which has been complete in degree, but of short duration, and which is lifted for a time to reappear in as complete a degree as before, is an indication of the renewal of the hemorrhage.

Hemorrhage is either traumatic or non-traumatic. In the former variety, one tries to localize the hemorrhage as superficial or deep and act accordingly. In non-traumatic hemorrhage, the cause is usually in a diseased bloodvessel and the disease must be ascertained and remedied. We undertake to remove the effused blood or relieve the pressure in every instance, because it would do serious damage to the brain structure if left in situ. Apoplexy into the internal capsule usually takes place in plethoric subjects with sclerotic vessels and high tension pulse. Prior to the rupture of the bloodvessels one of the best preventive measures is venesection. As a rule, therefore, the external bleeding from the scalp at operation is not without therapeutic value. The patient is comatose and needs no anesthetic, so that no danger from this source is anticipated. When the subject is not in coma, naturally the danger of the operation is increased by reason of the anesthesia. There is reason to believe that the nerve fibers of the motor tract are not in the first instance destroyed by the hemorrhage, but are merely pushed aside; that these fibers later undergo degeneration through pressure from the clot plus the increased intracranial tension.

The author believes that the duration of the comatose state is the chief guide and indication for surgical methods. From a prognostic standpoint a coma of over three hours' duration is to be regarded as serious, although this length of time is purely arbitrary. Although it is the general belief that the pyramidal tracts are crossed, there are cases where there seems to be no decussation. In one case at autopsy, a right-sided lesion showed a right-sided hemiplegia.

The operation in eleven instances of apoplexy was merely to relieve pressure. Six showed very excellent results. The operation consists in taking out a small portion of bone and in all instances incising the dura. No probing of the brain should be done.

Facio-Hypoglossal Anastomosis. G. F. COTT, Buffalo. *Journal of the American Medical Association,* August 8, 1908.

Formerly, most anastomoses to relieve facial paralysis were made between the facial and spinal accessory nerves, but the results were unsatisfactory. The close association of the facial and hypoglossal centers in the cortex and the medulla as compared with the widely separated ones of the facial and spinal accessory, make the hypo-

glossal nerve, all things considered, the preferable nerve for anastomosis, though the spinal accessory is the easiest to manipulate. The muscles of the tongue supplied by the hypoglossal always recover provided the nerve is not severed; the inconveniences of swallowing lasting only a few weeks. The operation is described: an incision is made along the anterior border of the mastoid process and the outer border of the sternomastoid, on a level with the external auditory meatus, through the skin, superficial fascia and platysma. The parotid gland with its capsule, is then drawn forward and the posterior belly of the digastric exposed, which is drawn forward and, if necessary, cut transversely. Feeling for the styloid process, the facial nerve can be felt as a round cord under the finger; it is freed from its connective tissue and followed up to its exit from the styloid foramen. It may then be severed with a thin knife, or if more of it is wanted, a little of the bone may be chisseled away before cutting. The transverse process of the atlas is then sought and the deep fascia incised. The jugular vein then comes into view and is held forward with a retractor. Under it are the vagus and the hypoglossal nerves, which must be tested functionally to get the right one. Careful dissection is needed here to avoid injuring the cervical ganglia or entering the pharynx. Having selected the nerve, it should be gently dissected out, raised on a blunt hook and its sheath incised to admit the severed trunk of the facial. A suture should then be passed through the sheath of the hypoglossal, making the needle emerge at the incision, and then passing it through the facial sheath and again through the severed sheath of the hypoglossal, when it should be tied. It is important to secure perfect coaptation with injury to as few neurons as possible. If the facial is too short, it may be necessary to split the hypoglossal for one-half to three-quarters of an inch to bring them together, but the results will not be so good. There should be no tension on either nerve in making the suture. The hypoglossal is allowed to fall back in its bed; the junction may be covered with Cargile membrane or a few drops of sterile vaselin. The suture material should be rat-tail tendon. While the results are not perfect, anything is better than total paralysis, both as regards looks and effect on the patient's mind. Massage and electrical stimulation of the muscles should be begun shortly after the operation and kept up till sufficient motion is secured, which may mean months or years.

Nerve Anastomosis in Infantile Paralysis. KARL OSTERHAUS, Norfolk. *Medical Record,* July 11, 1908.

The author believes that in many cases of infantile paralysis the best results will be obtained by nerve anastomosis. He advocates the following two methods of anastomosis as the best: 1. End-to-end anastomosis of the peripheral segment of the affected nerve with the central end of the segment split from the unaffected nerve. 2. Lateral anastomosis of the peripheral segment of the affected nerve with the unaffected nerve. He employs catgut sutures, plain or carbolized, which are passed through the sheath only and not through the trunk of the nerve. Only as few sutures as will keep the parts in coaptation should be used. The operation should not be performed until an interval of a year has passed. The author has thus far operated on three cases; the first a year ago, the other two, three months. The first case is reported in detail and the ultimate functional result, while not perfect, is good.

The Treatment of Palsies by Means of Nerve Plastics (*Zur Frage der Behandlung von Lähmungen mittels Nervenplastik*). H. SPITZY, Graz. *Muenchener Medizinische Wochenschrift,* July 7, 1908.

Changes in our conception of the neuron theory have encouraged operators to resume work on nerve anastomosis with renewed vigor. The author has implanted the perineal nerve into the tibial in eleven cases; in three the tibial was anastomosed with the peroneal. All these cases were for paralyses due to anterior polyomyelitis. Except in the latter group the results proved uniformly good. Four operations in which it was sought to recurvate the quadriceps cruris by joining the anterior crural to the obdurator nerve were discouraging. Four cases of implantation of the radial nerve into the median were successful.

The technic requires careful attention to details and a special instrumentarium. Unnecessary injury and too radical isolation of nerves must be avoided. Careful suture and other details, mentioned in the article, are requisite for successful work. Seventy per cent. of Spitzky's cases show complete or partial success. At times orthopedic secondary operations are necessary. Motility does not appear for several months and it requires even a longer time for the patient to dissociate the movements of groups of muscles, which contract simultaneously.

Acute Peritonitis Before and During Labor (*Ueber akute Peritonitis vor und in der Geburt*). G. LEOPOLD, Dresden. *Zentralblatt für Gynäkologie,* July 11, 1908.

The patient was a thirty-six-year-old IV-para who was admitted to the clinic with a temperature of 103.8°, pulse 120. Two days previously she had a chill and vomiting. On admission marked distention, a very large uterus, granular colpitis and condylomata were noted. Although the os admitted but one finger the membranes were ruptured and four liters of greenish-yellow liquor was discharged. In three hours spontaneous expulsion of a living child. The mother died within fifteen hours.

Post-mortem:—Diffuse purulent peritonitis resulting from a right suppurative parametritis, fibrinous pleurisy, sepsis, septic spleen and condylomata acuminata. The phlegmon had originated in the cervix, spread to the parametrium and from there to the peritoneal cavity.

The case is of interest because it shows the spread of a recent gonorrhea, with closed cervix into the parametrium, and a peritonitis setting in *before* the onset of labor. This case would lead one to suspect that many of the severe infections which kill within one to two days after childbirth really begin before labor.

The Value of Spinal Anesthesia in Gynecological Laparotomies (*Der Wert der Rückenmarksanästhesie für die gynäkologischen Bauchoperationen*). E. HOLZBACH, Tübingen. *Muenchener Medizinische Wochenschrift,* July 14, 1908.

In a series of 253 laparotomies lumbar anesthesia was employed in 250. In three, deformity of the spine prevented successful puncture. The anesthesia was not considered successful unless complete analgesia up to the umbilicus, muscular relaxation, freedom from sequelæ and no harmful influence on the post-operative course were all obtained. In 3, 6 per cent. complete failure was recorded; in 16, 4 per cent. some inhalation narcosis had to be added (in most of these the operation lasted more than fifty minutes). The list of operations shows a great variety of major gynecological interventions. No serious accidents or sequelæ were noted. A slight transient albuminuria appeared in some patients. Three showed superficial necroses in the gluteal or perineal region. Pneumonia and bronchitis were entirely avoided.

The lumbar puncture should always be made by the same individual, thus assuring uniform technic. The needle should be connected with the syringe by a short rubber tube. This assures immobility of the needle during injection. Also, before injecting, if the piston of the syringe is pulled out a short distance, the tube remains unaltered if the needle is in the dural sac; if its point is among the nerve fibers the tube collapses. The stovain and suprarenin should be mixed immediately before injection. Changing to the Trendelenburg posture should be slowly made.

A Case of Extrauterine Pregnancy at Term. Laparotomy During False Labor. Living Child (*Nouvelle Observation de grossesse Extrautérine à terme. Laparotomie au cours du faux travail. Enfant vivant*). M. POTOCKI, Paris. *Annales de Gynécologie et d'Obstétrique,* July, 1908.

The patient, a woman of thirty-four years, was seen during her pregnancy by a physician. The pregnancy was

normal. At term everything appeared normal also. She was in labor for six days with slight pains, and slight hemorrhage. Various physicians diagnosed partial retroflexion of the uterus (sacculation), others full dilatation of the cervix, etc.

In the hospital the head was found engaged deeply in the pelvis; the small soft cervix was high (above the symphysis) and far anterior. To the right, the enlarged uterus reached 15 cm. above the symphysis and showed regular contractions. To the left was a much larger mass which did not contract. A loud souffle, no fetal heart sounds, but fetal movements were noted. At laparotomy a thin fetal sac was found adherent behind, on the left side and in the pelvis. The left ovarian artery and the anastomosis between the uterine and ovarian at the left horn of the uterus were clamped, and the child extracted. Most of the sac was extirpated, the placenta then detached *without any hemorrhage.* Where the sac could not be freed its amnion was shelled out and the rest buried, with abdominal drainage. Smooth convalescence. The child is alive and well three years after operation. Patocki believes that ligation of the two arteries above mentioned will always permit of bloodless extraction of the placenta, thus justifying an attempt to obtain a living child instead of waiting two months after false labor.

The Value of Acetone in the Treatment of Inoperable Carcinoma of the Uterus. F. H. MAIER, Philadelphia. *Therapeutic Gazette,* July 15, 1908.

This method, devised by Gellhorn of St. Louis, has proven highly satisfactory in the author's hands. The procedure, briefly, is the following. Under narcosis, the cancer is curetted; the crater is thoroughly dried and about a half to one ounce of pure alcohol is poured into the vagina through a speculum; for this purpose the pelvis is raised as in the Trendelenburg position. The acetone is allowed to run out at the expiration of 15 or 20 minutes and the cavity is packed with a strip of gauze saturated with acetone. The subsequent treatment consists in similar applications of acetone, two or three times a week, the solution being permitted to remain in contact with the cancerous area about half an hour at each sitting. Improvement consists in the cessation of hemorrhages and discharges, return of appetite and general improvement in health. The author's experience has been limited to four cases.

Chronic Pancreatitis. J. B. DEAVER, Philadelphia. *Journal of the American Medical Association,* August 1, 1908.

Deaver says that for the purpose of the surgeon it is sufficient to state that the most frequent form of pancreatitis is the interlobular, and that it is this with which we have to deal in the pancreatitis complicating disease of the biliary passages. The interacinar form is due to systemic conditions not yet understood, and is correspondingly less amenable to direct or local attack. The most frequent cause is doubtless some obstruction to the free discharge of the pancreatic secretion, accompanied or not with an ascending infection. Either factor alone is enough to produce it. Infection alone will account for those cases of chronic pancreatitis, following long-standing gastroduodenal catarrh, and it happens that most of Deaver's cases were, contrary to the usual rule, in patients in whom no gallstones were found, though in almost every case evidence of infection was found. Many other causes of chronic pancreatitis have been claimed, cardiorenal disease, tuberculosis, syphilis, etc., and Deaver thinks that microscopic examination would reveal many cases of beginning change in normal appearing organs. Though a somewhat definite syndrome has been established, he cannot agree with Mayo Robson that the disorder is easy to diagnosticate. Most cases still go unrecognized till revealed by operation or autopsy. The local symptoms are not very significant and may be practically absent, the examination of the feces is sometimes inconclusive and sometimes demands skill not always easy to command. The symptoms depending on the derangements of metabolism, due to interference with the internal secretion of the pancreas are most distinctive. Diabetes is often too late a symptom to be of practical value, but Deaver regards the Cammidge reaction as of value in many cases, and in the hands of skilled laboratory workers, as a fairly constant sign of pancreatic disease. He thinks, if sufficient care is taken, that most cases can be diagnosed with a fair amount of certainty. The history must be carefully taken and the study of the urine and feces made by an expert. Medical treatment is generally futile, but by surgery we can in many cases remove the underlying cause, overcome the infection, and bring about complete recovery. When secondary to gallstone disease, removal of the calculi, and free drainage will, in most cases, lead to a complete subsidence of pancreatic symptoms. When the gall ducts are found clear, and the causal infection has subsided, drainage of the organ by way of the biliary passages nevertheless exerts a remarkable curative effect on the lesion, especially when the diagnosis and operation are made early, before the so-called catarrhal pancreatitis has really become a chronic interstitial interacinar lesion. The choice of operation lies between simple drainage of the biliary ducts of a cholecystenterostomy. In gallstone cases Deaver considers the drainage indicated by the biliary condition to be sufficient, choosing choledochostomy or cholecystostomy according to the special indications of the case. Cholecystenterostomy is indicated when the pancreatic condition is well advanced and permanent drainage is desired. It is not his choice when there is much biliary infection, as he then prefers surface drainage. The operation is also severer than ordinary cholecystostomy and its mortality is higher, especially when we are dealing with a gall-bladder not well suited for the operation. The indications for surgical interference in chronic pancreatitis, Deaver considers are found in the diagnosis itself, unless some circumstance forbids. Thus he would not operate in the presence of marked organic disease of other organs, or be likely to advise operation on patients *in extremis.* Moderate anemia and glycosuria are not contradistinction, as both are often greatly benefited when normal metabolism is restored. His experience in the surgery of chronic pancreatitis has been such as to encourage further operative work in this direction. Improvement in results will follow earlier diagnosis.

Motor Functions of the Stomach (A) in Normal Cases, (B) After Gastro-Enterostomy, as Demonstrated by X-Rays. H. M. W. GRAY, Aberdeen. *Lancet,* July 25, 1908.

Gray studied the movements of the stomach after the administration of bismuth and as the result of numerous observations he arrives at the following conclusions: 1. The stomach is, naturally, not of the usually accepted shape. 2. It is an organ of two compartments, cardiac and pyloric, the division between these being a physiological sphincter. 3. These two compartments act in great part independently. 4. During digestion the cardiac portion maintains to a great extent its saccular form, its distal part only being affected by visible peristalsis, while the pyloric portion is tubular and affected by strong peristaltic waves along its whole extent. 5. In order to maintain or restore physiological conditions as far as possible the stoma in the operation of gastroenterostomy should be made in the pyloric tube. I do not pretend to introduce any *new* procedure. My observations have been made with the object of indicating scientific justification and therefore the necessity for the careful selection of the pyloric tube as the site of the stoma in this operation. J. B. Murphy and others advocate the placing of the stoma as near the pylorus as possible, but not for the reasons I have put forward. 6. I am inclined very strongly to doubt that food prefers to pass through the pylorus rather than through the lateral stoma some time after gastroenterostomy has been done in cases where there is no actual obstruction of the pylorus. This statement, backed by the excellent authority of Cannon's name, has received wide acceptance, but requires further corroboration.

The article is illustrated by numerous interesting tracings and skiagrams.

Torsion of the Appendices Epiploicae and Its Consequences. W. H. BRIGGS, Sacramento. *American Journal of the Medical Sciences,* June, 1908.

The author reports 14 cases from the literature and adds one of his own. He concludes as follows:

1. Torsion of appendices epiploicæ is more frequent than the paucity of references in medical literature would imply.
2. Torsion of appendices epiploicæ usually occurs in persons more or less obese, during middle life and later.
3. Intraabdominal torsion of appendices epiploicæ may simulate appendicitis, hepatic colic, cholecystitis, and various other intraabdominal diseases. Torsion of appendices epiploicæ in the hernial sac may cause all the local symptoms of an acute omental or intestinal, femoral, or inguinal hernia.
4. Torsion of appendices epiploicæ may result in corpora aliena adiposa, in adhesions and bands, and their consequences.
5. Corpora aliena adiposa may become infected and cause general peritonitis.
6. In the present state of our knowledge anything more than a tentative diagnosis of torsion of appendices epiploicæ would be rarely possible.
7. Early operation is indicated in all cases.

The Greater Omentum (*Ueber das grosse Netz*). B. PRZEWALSKI, Charkow. *Berliner Klinische Wochenschrift,* July 6, 1908.

The author reviews the various theories that have been advanced in regard to the physiology of the greater omentum and concludes that the only functions that have been surely demonstrated are the following:

1. Absorption of water and crystalloid solutions.
2. Absorption of bacteria, foreign bodies and colloid substances.
3. Encapsulation of abscesses, and formation of protective adhesions.
4. The destruction of inflammatory and necrotic substances.

In addition, the author calls attention to two hitherto unrecognized functions. 1. The prevention of prolapse of the small intestine through the foramen of Winslow. This was demonstrated by French observers, who noted in nine cases of this malady that the omentum was rolled up beneath the stomach or was adherent at some distance away. 2. The prevention of torsion of the small intestine. This was demonstrated by animal experiments performed by the author. He found that when the omentum is entirely resected, loops of intestine show a tendency to twist, sometimes even around an angle of 360 degrees.

Suprapubic Prostatectomy in Two Stages. HOWARD LILIENTHAL, New York. *New York Medical Journal,* June 13, 1908.

No matter how seriously sick the patient is or what emergency may arise, the suprapubic operation in two stages is comparatively safe. At the first operation, the patient is placed in the Trendelenburg posture and through a median hypogastric incision the bladder is opened, under local anesthesia or a light general anesthesia. There is usually very little bleeding and the exposure of the interior of the bladder is excellent. There is no question that if a patient should succumb to this operation, he would have died from the more protracted operation of removing the prostate then and there or from a prostatectomy done through a lithotomy wound. The second stage of the operation is performed in three to four days, the patient usually being told that he is to receive a light anesthesia to remove the packings that had been placed in the bladder. The prostate is readily enucleated by tearing an opening in the base of the bladder with a blunt scissors and shelling it out. Drainage tubes are inserted into the bladder, and in one to two days the patient is up and about with the tubes *in situ.* The suprapubic opening invariably closes and urine is usually passed per urethram in ten days to one month.

The advantages of this operation are manifold. The danger of serious hemorrhage is obviated, the time of anesthesia is shortened to at least one-half (the two stages of the operation taking only about ten minutes) and there is no inury to the rectum.

A New Method of Prostatectomy (*Eine neue Methode der Prostatektomie*). PROF. WILMS, Basel. *Deutsche Zeitschrift für Chirurgie,* June, 1908.

Although the suprapubic method of extirpating the prostate is the operation which is advocated by most surgeons at the present writing, the author believes that the perineal route offers so many advantages that it would find a great deal more favor if chances of injury to the rectum could be reduced. With this in view he has successfully applied the following procedure in three cases: An incision 4 to 5 cm. long is made directly over the descending ramus of the os pubis on the left side. Through this wound the left lobe of the prostate is easily accessible, lying no deeper than 1.5 cm. The M. ischio-cavernosus and the accompanying pudic artery are displaced towards the median line, and, after the introduction of a catheter into the bladder, the capsule of the prostate is incised and both lobes are enucleated through the one incision. The post-operative treatment is the same as in other cases, the usual perineal drainage being employed.

The Penis Clamp in the Treatment of Acute Gonorrhea. J. W. MILLER. *The Lancet-Clinic,* July 18, 1908.

The employment of the newer silver salts cures gonorrhea much quicker than any of the older methods. These preparations have the power of dialysis through animal membranes, but only when retained for a sufficiently long interval. The patient is usually told to hold the silver solution for five to ten minutes, but these directions are seldom carried out either from lack of time or disinclination. As most of these preparations disintegrate in a short time and are thus rendered inert, it is advisable to order them in small quantities.

Since it is often very tiresome for the patient to hold on to the penis for any length of time, the employment of a penis clamp will facilitate matters considerably. The clamp here illustrated answers every purpose. As will be seen, this instrument is readily sterilized and it fits the parts snugly. It does not cause the least inconvenience to the patient. Under correct treatment, the secretion may be made to disappear by the end of the third day.

Varicose Veins of the Papilla of the Kidney a Cause for Persistent Hematuria. WM. F. WHITNEY, Boston. *Boston Medical and Surgical Journal,* May 21, 1908.

The author reports this case for the reason that it may throw some light upon those little understood cases of symptomless and painless hematuria. The kidney was removed at operation from a patient who had had repeated attacks of hematuria extending over a considerable period. In the gross specimen a red and spongy area was noted at the tip of one of the papillæ. Microscopically it was found to consist of small venules, dilated to twice or three times their normal size, and covered on their free surface with the finest possible filament of connective tissue and a single layer of epithelial cells. The conditions were plainly such as to permit of rupture upon the slightest violence. The author finds that Fenwick has reported six similar cases.

Endovesical Solution of Foreign Bodies (*Endovesikale Auflösung von Fremdkörpern*). E. POLLAK, Vienna. *Wiener Medizinische Wochenschrift*, July 9, 1908.

The author reports the following interesting case: The patient, in order to relieve some kind of irritation, had placed a wax-taper into the urethra, which slipped into the bladder. He came to the clinic complaining of pain on micturition. The urine was cloudy and the foreign body could be easily seen by the cystoscope. The author resorted to injection of 20 cm. of benzine into the bladder, which was left in for half an hour. The procedure was repeated, but owing to pain, the benzine was allowed to escape at the end of ten minutes. The next day the thread of the taper was passed. The patient was thereupon free of symptoms, the completed elimination of the foreign body being confirmed by cystoscope.

Concerning Some Rare but Important Surgical Injuries Brought On by Violent Exercise. P. HAGLUND, Stockholm. *Lancet*, July 4, 1908.

The first injury described is epiphyseal separation of the tubercle of the tibia; this generally occurs in athletic boys and may be partial or complete. The lesion is attended by acute pain upon any motion in which the ligamentum patellae is called into action. The patient is thus debarred from all exercise; walking is painful, and a condition almost bearing on invalidism is brought about. The trouble does not generally come on suddenly, and the history elicits the fact that the first pain was felt after some severe muscular exertion—jumping for instance. Treatment consists simply in rest. In milder cases the patient is allowed to walk; in severe cases the patient must go to bed. The condition usually lasts six months or more.

The second injury described is separation of the epiphysis of the os calcis, at the junction of the Achilles. This is less frequently met with, but is even severer in its prognosis, inasmuch as the period of invalidism lasts about a year or more.

The third injury is fracture of the still unossified os naviculare of the foot. This injury is usually caused by football, tennis and especially excessive dancing. This explains why girls exhibit this injury more often than the two preceding ones.

Coxa Valga. A. H. TUBBY, London. *British Medical Journal*, July 25, 1908.

After defining the term caxa valga, the author passes to the etiology. This may be congenital or acquired. The acquired varieties may be due in the first place to traction exerted by a pendant limb. This is most commonly seen in infantile paralysis where the limb has been inactive for a long period. Coxa valga may also be traumatic due to fracture of the neck of the bone. Functional coxa valga is due to deformity of the weight-bearing capacity of the body, the result of other causes. Among other causes of coxa valga are mentioned rickets, tuberculosis, osteomyelitis and idiopathic development. The symptoms are (1) pain and spasm; (2) limping, especially characteristic is the sailor gait, if the lesion is bilateral; (3) lengthening of the limb; the limb is abducted and rotated outward, while the movements of adduction and internal rotation are limited; (4) in bilateral cases the patient stands on one leg with difficulty; in unilateral cases, when the patient stands on the affected limb, the body is inclined toward the affected side; (5) compensatory scoliosis; (6) flattening of the trochanter. The court of last resort is the skiagraph; this must be taken with caution; the author believes it best to take the picture in three different positions. The treatment is difficult. Methods consisting in the application of plaster of Paris with the limb in an overcorrected position have proven of no avail in the hands of the author. The best method of treatment is that devised by Gallazzi, which consists in a cuneiform osteotomy with the base inward at the base of the neck of the femur.

A Method of Preventing Infection from the Skin During Surgical Operations. J. S. HORSELEY, Richmond. *New York Medical Journal*, August 1, 1908.

This method consists in clamping by toothed instruments the edge of a folded towel over the skin edge upon either side of the incision; both towels are clamped together at a short distance from the angle of the wound by a hemostatic forceps. It is important to fold the towel well over the edge of the skin. The object of this procedure is to prevent contamination of the wound by organisms liberated from the cut surfaces of the skin. The knife used for the primary incision is replaced by another for the deeper dissection.

Palliative and Surgical Treatment of Fissure in Ano. KENNETH KEITH MACALPINE. *The Post-Graduate*, July, 1908.

The quickest and surest way of curing a fissure in ano is to give a general anesthetic and stretch the sphincter thoroughly. The distinctive part of the procedure is to stretch the sphincter by gradual dilatation with the fingers, first inserting one finger, then a second, until at least four are admitted into the bowel. The rest of the dilatation is accomplished by pressing in opposite directions with the thumbs or by having an assistant insert two of his fingers between those of the operator. The success of the procedure depends upon the care exercised in keeping the sphincter from tearing, which might produce irreparable harm. After divulsion the fissure may be curetted. The patient's bowels are not moved until the third or fourth day. Local applications of 4 per cent. nitrate of silver later on are painless and very beneficial.

The second method of treatment is for patients who do not wish to take a general anesthetic. A suppository of opium is inserted before the treatment. While the patient bears down a small speculum is inserted over the site of the fissure which is painted with cocain. A 6 per cent. solution of nitrate of silver is then applied. The treatment is made three to four times a week for about two months. As the patient becomes more accustomed to the treatment, he finds that he has less discomfort and pain. The stools should be kept loose by the administration of laxatives. After the passage of a stool, the patient is taught to apply a 25 per cent. argyrol solution about a half inch beyond the anus.

The Value of Bilateral Ureterostomy (Short Circuiting of the Urine) in Advanced Cancer of the Bladder or Prostate, and as an Adjunct to the Removal of the Bladder in Uncontrollable Localized Disease. E. HURRY FENWICK, London. *British Medical Journal*, July 4, 1908.

Acting upon the suggestion of Watson, of Boston, who advocated preliminary bilateral nephrotomy before removing the entire cancerous bladder, Fenwick conceived as a substitute for this operation, bilateral ureterostomy, bringing out the ureters on to the loin. After performing the ureterostomy, the entire bladder is removed very easily by simply dissecting the distended organ, from the rectum behind, the pubis in front and division at the vesical orifice. If the prostate or seminal vesicles are involved, these are removed as well. In one case, in which the disease was distinctly limited to the right side, Fenwick did a unilateral ureterostomy, split the bladder in two and removed the involved half.

Torsion of the Gall-Bladder (*Stieldrehung der Gallenblase*). R. MÜHSAM, Berlin. *Berliner Klinische Wochenschrift* June 22, 1908.

The patient complained of symptoms simulating those of acute appendicitis or of acute cholecystitis. There was, however, no fever, but the white blood count was 20,000. Under anesthesia a small globular tumor was palpable opposite the umbilicus. Operation showed a densely congested gall-bladder, the pedicle of which was turned around at an angle of 360 degrees. The organ was extirpated and the patient recovered. The contents consisted merely of dark blood; no calculus was present. The author has not been able to find a similar case reported in the literature.